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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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British Overseas Trading Methods

WE published on October 9, from a chemical expert in charge of an important Government chemical works in India, some notes on British overseas trading methods, in which British methods were contrasted somewhat unfavourably with American. We have now pleasure in giving the other side of the picture in a communication from a British engineering firm of high standing, who state that they have read with special interest our leader of October 9, and desire the opportunity of offering one or two observations in reply from the point of view of the British manufacturing engineer.

"There seems to be," our correspondents state, "a strong tendency in the Press to-day to decry British methods at every available opportunity, and whilst this may be done from the best of motives—namely, to call attention to any inefficiency on the part of our trading organisation—it must at the same time have the effect of presenting to the outside world a very doleful picture of British industry, and one not calculated to inspire confidence in British manufactures amongst buyers overseas. We do not think for one moment that the example quoted by your correspondent represents a fair comparison of the methods of British and American manufacturers, but whatever amount of truth there may be in the statements made, it is not a complete statement of the case to lay the whole of the responsibility on the British engineer. The relevant conditions here are vastly different from those obtaining in the States. Over there, it would seem, there is a much closer co-operation between the engineer producing the plant and the manufacturer who uses it, with the object of turning out the best possible apparatus for the work or improving upon existing plant and methods. Compare this with the attitude of the manufacturer here towards the engineer; when any plant has been supplied his principal concern would seem to be to let the engineer know as little about it and its performance as possible, presumably from a short-sighted motive of preventing his competitors obtaining similar plant.

"Again, and without detracting at all from the high reputation of many American firms, it is within our knowledge that there are concerns even in the States whose methods vie with the worst that has ever been claimed for British methods. We have one particular manufacturer in mind, with whom we do a fair amount of business, and we have no hesitation in saying that they are the most unsatisfactory firm we have to deal with. Information they supply is always of the skeleton variety, and even at that is often absolutely wrong; drawings they send are not usually in accordance with the machines when they arrive; specific instructions given are as often as not ignored—to mention just a few points.

"Your correspondent also makes some reference to the percentage of Indian inquiries likely to result in business. His remarks suggest some explanation of the tremendous proportion of inquiries, from India especially, which show no result, and the replies to which are frequently not even acknowledged. We can, of course, ignore the innumerable and obviously idle inquiries with which all exporters are deluged from that particular market, although even these cause a good deal of trouble, and probably in the long run account for some little preference being shown to inquiries from other markets. There is such a mass of idle inquiry from the Indian market generally that we should be inclined to suggest that any firm making serious inquiries would probably get better results if their inquiries came through the channel of some reputable merchant house.

"Another point which does not seem to be generally understood by many foreign inquirers is that an engineer has frequently to sell a plant and a process, of which the latter is often the more valuable. The buyer can reasonably expect to receive all information and data to enable a decision to be made, but has not the right to the full process before any order is placed

—although this is often expected and demanded. Again, it is quite usual for an inquirer to demand itemised quotations, manifestly with the object of getting what part of the plant he can to better advantage elsewhere."

We are glad to have this communication from so good a source. It shows, as is frequently the case, that the complaints against British methods are largely generalisations based on inadequate grounds, and that, in the practical British way, we concentrate attention on the things that matter, without wasting too much time on non-essentials.

The Coal Situation

THE decision of the district mining associations to whom the Government's suggested terms of settlement have been referred is at the moment not known. The prospect is that they will be accepted in some districts and rejected in others. Of the two courses a majority in favour of acceptance would be preferable, for this would bring the dispute to some sort of official end. But whichever way the majority falls, the real settlement is already in progress, owing to the steady return of the miners to work. It is idle to review the blunders that have marked the negotiations or the losses to all interests that have resulted. The more important work now is the vigorous resumption of national trade. In spite of the sacrifices and disorganisation, the tone remains optimistic. In a little while, it is confidently predicted, there will be a welcome "boom," and an optimistic spirit is just the thing to help to bring it about. Although the large coal-using industries were glad enough to obtain foreign coal to enable them to carry on, they will be still more glad to have their British supplies resumed. The countries that have been benevolently exporting coal to us at prices very profitable to themselves have no doubt taken advantage of the market conditions, and have made the most out of the situation for themselves. The prospect of a near settlement has already had an improving effect on foreign exporters' methods; but their hope of retaining the permanent custom of British coal users promises to be disappointed as soon as British supplies are once more available, as they should be within a few weeks.

Meanwhile, although the owners and the miners continue shortsightedly to think of nothing but the wage, which, as Captain Bain pointed out in his excellent speech at the Manchester Exhibition, is far from being the fundamental issue they imagine, the greater problem of the utilisation and treatment of coal in the most scientific and profitable way is receiving increasing attention from scientific and technical quarters. A fortnight ago we gave particulars of the exceptionally important international conference at Pittsburgh, in which Bergius and Fischer, Patart, and a group of British and American experts are taking part. In this country commercial interests are now becoming keenly concerned in developments arising out of the Bergius process. The exhibition at Manchester opened this week, coupled with the forthcoming Tar Conference, is a further illustration of the way in which the whole problem of fuel is forcing itself upon us. The lead in the newer branches of research has come mainly from continental workers; but it is satisfactory to find British scientific and commercial interest being rapidly quickened in such problems. It seems clear that the advances will be on an international scale, and it is satisfactory to find that Britain is to be well represented in them.

A Manchester Conference on Tar

THE conference on "Tar," which has been arranged by a joint committee of the Coke Oven Managers' Association, the Institution of Gas Engineers, and the Fuel Section of the Society of Chemical Industry, to take place in Manchester next Friday, November 26, during the Coal Products, Chemical and Engineering Exhibition, promises to be one of unusual interest and importance. As the official announcement states, the importance of the subject of "Tar" to the fuel industries generally cannot be over-estimated. Apart from the many products of the most varied uses which result from treatment of tar according to orthodox practice, new problems have arisen and are continually presenting themselves with changes in the materials and modes of fuel carbonisation. The methods of treatment and the applications of tar are rapidly developing, and it is essential to survey briefly from time to time the state of progress of the tar-making, tar-treating, and tar-using industries in the interests of economical industrial development. It is believed that the "Tar" conference will afford a useful opportunity for a communication of knowledge, a survey of experience, and an exchange of ideas that cannot but be of advantage to the tar industries in the future.

There will be three sessions—morning, afternoon, and evening—and the subjects chosen for discussion cover the field comprehensively. At the morning session, over which Professor Smithells will preside, Papers will be presented by Mr. F. S. Sinnatt and Dr. J. G. King on "A study of tars and oils obtained from coal"; by Mr. W. Gordon Adam on "A plea for standardisation of analytical methods in coal-tar products specifications"; by Mr. H. M. Spiers on "The viscosity of tar"; and on "The consistency of bitumen mixtures." At the afternoon conference, over which Alderman Thomas Glover will preside, Mr. J. McLeod in collaboration with Messrs. C. Chapman and T. A. Wilson, will contribute "Notes on vertical retort tar"; Mr. Michael Barash a paper on "The production of road tar from vertical retorts"; Mr. H. Hollings a paper on "The influence of carbonising conditions upon free carbon content of tar"; and Dr. Albert Parker on "Tar from steamed vertical retorts." At the evening session, over which Mr. E. Escott-Wood will preside, papers will be contributed by Mr. W. Gordon Adam, in consultation with Mr. H. W. Robinson, on "Tar from the point of view of the highway authority"; by Mr. A. C. Tait on "Coal-tar disinfectants"; and by Mr. H. F. Taylor on "The evaluation of pitch." The conference fits in well with the exhibition, many of the exhibits at which bear on the subjects under discussion, and with the object of making the discussions as useful as possible the organisers have dispensed with invitations and tickets. The conferences will be open to all interested.

The Annual Dinner

THE annual dinner of chemists in London—or "chemical dinner" as it is officially described—grows better every year. This year's assembly, held on Armistice Celebration Day, was the largest and most representative of the season, and the large hall at the Connaught Rooms, filled in every part, made a very satisfying picture. The experiment of admitting ladies, which was originally decided on with great trepidation, has apparently quite established itself, and has led to two modifications. It has restricted the time usually allotted to after-dinner speaking, and it has extended the margin for social intercourse so far as to include a modest programme of music and dancing. The after-dinner speaker, however, is not easily suppressed, and though the trespass beyond the time limit did not extend to penal lengths, it slightly deferred the later revels. Sir Duncan Kerly gave us a seductive picture of the processes of the law, as exhibited in that particularly cheerful branch, the Chancery Division. It must have convinced those who had had personal experience that they had received their full money's worth; it must have assured the rest that, should they ever become parties to a Chancery suit, they might safely count on having justice done to them—which is, perhaps, the last thing they would desire. Professor Donnan, in the chair, responded in a neat little speech for the profession of chemistry, and Mr. F. H. Carr for the industry. Mr. Carr has developed a fine speaking voice and a confident, emphatic style, which promises well for his visitations to the sections. It was the unity of the various chemical communities that he mainly pleaded for. The great industrial fusion in the chemical industry he regarded as a sign of the times, which would encourage similar tendencies all round, and his final plea was for support to the Chemistry House idea, on behalf of which an appeal is expected to be issued shortly. Finally, we had a vote of thanks, proposed by Dr. Ormandy, as the Club chairman, to Professor Donnan, who may possibly be the future chairman, and both got in the little stories they had threatened us with. It was altogether a very pleasant and successful evening.

October Trade Returns

IT is surprising that so many usually competent authorities should, in relation to the Board of Trade returns, continue the fallacious method of comparing one month with the previous month. The only possible comparison in trade or in anything else is like with like, and in considering October figures the only figures that are relevant are those of previous Octobers. Bearing this in mind, there is very little to learn from the October trade returns except that we have had a coal strike, that one of the largest of our trading accounts has closed, and that other accounts depending upon it have shrunk. Imports at two millions more than October, 1925, show that our purchasing power is still on the low level of a year ago and that the standard of life of our people still leaves much to be desired. Exports at fourteen million less than a year ago show us how wonderful is the general body of British trade, which, notwithstanding the total cessation of coal exports that last October were worth four millions, and an almost total cessation of every sort of production and export that depends on coal, still enabled us to export 53 million pounds worth of British goods in the month of October. As regards the chemical industry, its resources and excellent organisation—especially the good relations between employers and men—have enabled it to resist the effects of the strike more successfully than any other of its size. The October exports, it is true, are down by £342,656 as compared with the corresponding month of last year. Imports, on the other hand, have increased only by the surprisingly small amount of £18,458. This latter figure is very satisfactory, as it indicates that in spite of the strangling effect of the strike the country is not being flooded with foreign chemicals. In these circumstances, the reduction in exports can be borne with greater equanimity. As the strike has lasted so long, it is especially remarkable that the total exports for the ten months ended October 31, though £1,471,688 less than in the corresponding period of last year, stand at £18,562,727. If a trade of this dimensions can be carried on under the worst possible conditions, it seems certain that with the expected end of the coal strike the chemical industry of this country has every prospect of entering upon a "boom" period. A considerable factor towards this end will probably be found in the reorganisation which has recently taken place within the industry.

The Calendar

Nov.		
22	Chemical Industry Club: "The Incandescent Gas Mantle Industry." C. S. Garland.	2, Whitehall Court, London, S.W.1.
22	Publicity Club of London: "A Consideration of the Relationship between Trade and Technical Journals, Advertisers and Advertising Agents." Sir Ernest J. P. Benn. 7 p.m.	Hotel Cecil, London.
23	Institution of the Rubber Industry (London Section): "Selenium in Rubber Compounds." C. R. Boggs.	Engineers' Club, Coventry Street, London.
23	Society of Chemical Industry (South Wales Section): "Asphaltic Roads." T.M.McKenzie. 7.30 p.m.	Technical College, Cathays Park, Cardiff.
23	Society of Chemical Industry (Birmingham and Midland Section): "Pregl's Method of Micro-Analysis." Dr. H. D. K. Drew. "The Action of Hydrogen Chloride upon Methyl Alcohol." S. R. Carter and N. J. L. Megson. 7.15 p.m.	Latin Theatre, University Buildings, Edmund Street, Birmingham.
23	British Science Guild: Norman Lockyer Lecture. "Biology and Human Life." Professor J. S. Huxley. 4 p.m.	Goldsmiths' Hall, London.
24	Society of Chemical Industry (Newcastle-on-Tyne): "Heat Insulation and the Materials Used for the Purpose." J. S. F. Gard. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
26	British Association of Chemists (London Section): Members' Meeting. 7.30 p.m.	175, Piccadilly, London, W.1.
26	King Edward's Hospital Fund for London: "The Romance of Refrigeration." Dr. Ezer Griffiths. 5 p.m.	Fyvie Hall, Polytechnic, Regent Street, London.
27	North of England Institute of Mining and Mechanical Engineers: Social evening.	Wood Memorial Hall, Newcastle-on-Tyne.
30	Chemical Industry Club: Annual General Meeting. 8 p.m.	2 Whitehall Court, London, S.W.1.

Recent Developments in the Cultivation of China Wood Oil

By T. Hedley Barry

In a previous article in The Chemical Age ("Oils from Species Aleurites," August 5, 1922) the writer discussed the botanical origin and history of the oil generally known as Tung Oil or China Wood Oil, and drew attention to the importance of this oil in the paint and varnish industry in particular. Since the value of the oil depends upon peculiar properties which are not common to all the oils produced by trees of this group, even when growing in the same locality, it is obviously essential that the botanical origin of the oil sold as China Wood Oil should be known, and the possibility of adulteration avoided. Reference was made to the experiments conducted in the

Tung Oil Trees at the Experimental Station, Gainsville, Fla., Planted from Seedlings in 1912.

United States on the cultivation of Aleurites Fordii, the tree which is at once the most adaptable to American conditions, and the source of the most satisfactory oil.

In the present article the writer proposes to give an account of the work done in the United States, and through the courtesy of Dr. H. A. Gardner, of the Scientific Section of the Paint Manufacturers Association, U.S.A., is able to reproduce some photographs of the plantations. The rapid increase in the use of the oil is shown by the export figures.

	gallons.
1921	89,530,000
1922	130,517,200
1923	137,673,400

The oil was first mentioned in the Chinese Customs in 1897, and appears to have been introduced to the United States about 1902, where the consumption reached about 50,000,000 gallons per year by 1917. The unstable condition of the Chinese market has always been a cause of anxiety to consumers, and complaints of adulteration and illegal taxation of the crude oil on its way to the ports by various authorities through whose territory it had to pass, were frequently made. The American case against the Chinese was further strengthened by the way in which the Chinese merchants took advantage of the rapid increase in the demand for Tung Oil in 1922, and forced up the price to nearly four times the normal figures.

The oil is generally packed in large wicker baskets holding about a pikul (133⅓ lb.), which are lined with about sixteen thicknesses of paper. A junk load varies from 300 to 700 baskets. The mouth of the basket is about 10 in. diameter, and in winter the oil frequently partially solidifies. Consequently, emptying the bottles into store tanks is a tedious business, and there is considerable loss due to leakage and breakage. Recently an American firm stated that of 100 baskets 50 had solidified, and on examination the contents were found to be impure, whereas the other 50 which had remained liquid were pure. This, however, is not likely to be always true, for some of the adulterants said to be used by the Chinese would tend to keep the oil liquid.

The Americans, therefore, commenced experiments on the cultivation of the tree in the United States. It was found that North-West Florida was a particularly suitable region, and satisfactory results were also obtained in South Georgia and Alabama. More recently attempts have been made to extend the plantations further south in Florida. Experiments in California, however, were not successful. The experiments were conducted under the auspices of the Paint Manufacturers' Association, U.S.A., and a plantation of 70 acres was started in 1916, and a further 200 acres was put under cultivation in 1924. The principal area is in the neighbourhood of Gainsville, and the American Tung Oil Corporation was founded with headquarters there in 1923. Apart from climate and soil, this locality has certain economic attractions, for the citrus fruit industry, of which this town was formerly the centre, has gradually moved southwards to more favourable climatic conditions, and the cotton crops are frequently ravaged by the Boll weevil, to whose depredations the Tung Oil tree seems particularly resistant.

Experiments were started in 1912 with ten seedlings from the Department of Agriculture, Washington, and by 1924, trees up to 28 ft. high with a spread of 34 ft. had developed from them, and reproduction was satisfactory. In 1922 a private landowner, Mr. B. F. Williamson, started some experiments, and by 1924 had a plantation of some 120,000 seedlings and several hundred trees. More recently, a large firm of varnish makers have started a plantation of 2,400 acres in Florida, which will support about 200,000 young trees, or 80,000 fully-grown ones.

The yield of oil per tree varies. In the case of one tree on the Gainsville plantation, 3¼ gallons of oil were obtained, but the average is probably of the order of one gallon, and it is estimated that some 50,000 acres of plantation would be necessary to supply the needs of the United States. Experiments on existing plantations show that, as in the case of all agricultural products, the quality and quantity of the product can be greatly improved by careful attention to details, particularly the correct use of a fertiliser and the proper spacing of the plants. By planting Cow Pea and Beggar Weed between the rows of trees, both a cattle food and a fertiliser are obtained, for the heads of these plants are eaten by cattle (which will not touch the Tung Oil trees since they are poisonous), whilst the roots, being nitrogen gatherers, can be ploughed in to enrich the soil. Both Cow Pea and Beggar Weed are largely grown in

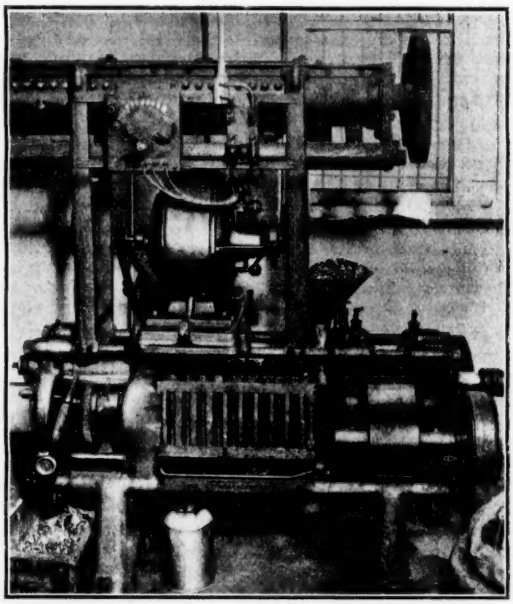
Breaking Tung Seed in Laboratory Crusher.

Florida for this purpose. Sodium nitrate lightly applied has also proved highly beneficial.

An important discovery was the selection of the best time for transferring the plants from the nursery to the field. The tree is dormant from December till February, and if transplanted then grows into a low-spreading tree with a maximum of nuts. If transferred at other times, a long, thin-stemmed tree results, which has to be cut back to within 8 in. of the ground in order to obtain a satisfactory tree in the following year. This is considered to be a discovery of the highest importance by the American authorities.

The trees yield oil from the fourth year onwards, reaching the maximum in the tenth year. The length of productive

life is considered by Chinese writers to be about ten years, but there is little doubt that with proper attention this period could be greatly extended. In the American experiments, the trees reach a height of from 4 to 8 ft., in the first year, and bear a blossom which closely resembles apple blossom in April. They may bear fully developed fruits, but these are not allowed to mature, in order that the strength of the tree may not be sapped. By the fourth year, a satisfactory oil production can be obtained. The fruits drop from the tree in October, and are



LABORATORY EXPELLER USED IN EXPELLING OIL FROM AMERICAN TUNG SEED.

allowed to remain on the ground for a time, where they rapidly turn brown and are easily husked and the four or five nuts contained therein removed.

In regard to crushing, in the first instance, experiments were made on hand-picked nuts which were crushed in the laboratory, a very pale oil resulting. When, however, larger quantities were dealt with by an Anderson Expeller, under conditions more resembling those of industrial practice, the colour of the oil was little better than that of the average Chinese product. This was found to be due mainly to the presence of moisture, which produced a slime, and also developed a certain amount of heat during pressing. It was found that if the nuts were previously dried, either in the sun or in warm rooms, an extremely pale oil resulted. In Chinese procedure, the nuts are first cooked, and though this obviates the trouble due to moisture, it may be carried too far, and this, together with the crude type of crusher frequently used, largely accounts for the darker colour.* It was found that the American oil from carefully dried seeds was not only very pale, but became even paler if heated to 200° C. for a short time, whereas the Chinese product darkens. A further advantage of the American procedure is that the acidity is remarkably low. In some cases a perfectly neutral oil was obtained, and the highest acid value reported is 1·2. The oil also gelatinised more rapidly than the Chinese product under standard conditions of the test, whilst its refractive index is high, about 1·51, and the iodine value 165–167. The following analyses are of interest:

	Florida 1.	Florida 2.	Alabama.
Specific gravity	·941	·944	·9424
Refractive index	1·519	1·5175	1·5187
Acid value	0·5	1·0	1·2
Unsaponifiable matter	0·47	—	—
Saponification value	193·8	194·4	191·6
Iodine value	166·0	161·0	166·8
Heat Test A.S.T.M., minutes	10¾	9⅝	10½

* See previous article.

For comparison, the following figures may be quoted, the samples being described as Tung Oils of superior quality produced at Shanghai.

	A.	B.	C.	D.	E.
Specific gravity	·9429	·9430	·9444	·9428	·9421
Refractive index	1·518	1·5179	1·5171	1·5184	1·5188
Acid value	4·98	4·94	5·15	5·48	5·99
Unsaponifiable, per cent.	·618	·596	·565	·538	·565
Saponification value	193·1	193·9	192·9	194·2	193·0
Iodine value	164·4	164·6	163·0	166·2	166·6
Heat Test A.S.T.M. minutes	9¾	10¼	8½	10¾	11½

NOTE.—A—slightly cloudy. C—Very cloudy.

The disposal of the cakes left after crushing is a matter of great economic importance in all seed oil production by pressure. In the case of China Wood Oil there is a disadvantage in that the cake cannot be used as cattle food owing to its somewhat poisonous nature, but it is stated by some workers, notably Hefter (*Technologie der fette un oele*, vol. 2, p. 57, 1908), that it is possible that the poisoning is due to cyanogenic substances, which are easily destroyed by heat, and consequently, the hot-pressed cake is not poisonous. It may ultimately be possible to produce a non-poisonous Tung Oil cake, but it would naturally always be regarded with a certain amount of suspicion by cattle raisers, unless special care were taken.

In the experiments so far carried out, the yield of oil has been of the order of 28 per cent., whilst cakes contain 3½ to 4½ per cent. of oil. They contain about 3 per cent. nitrogen, 10 per cent. phosphoric acid, and 1 per cent. potash. This is equivalent to about 2·6 per cent. bone phosphate of lime, and 4 per cent. of ammonia, and it has therefore considerable value as a fertiliser. According to the American estimates it would be worth about 12 dollars per ton, and, of course, a fair amount of it could be used on the tung plantations themselves.

From the above review of the present position, it would seem that the cultivation of the Tung Oil tree can be made a profitable undertaking, and within the British Empire there should be ample room for its development. It is stated that the tree has been introduced in Ceylon, Demerara, Dominica, Jamaica, and Zanzibar, whilst the French Government are said to be cultivating it in their African Colonies, particularly Algeria. The Tung Oil tree gives useful timber. Although it is soft when first felled, it hardens when seasoned, and does not warp or crack. It is said to be particularly resistant to the attacks of wood-eating insects. It is used in the manufacture of boxes, musical instruments and for the framework of small houses.

British Dyestuffs Production in 1925

Development Committee's Return

THE Board of Trade have received from the Dyestuffs Industry Development Committee the following statement showing the quantities of the various main classes of dyes which were produced in the United Kingdom during the year 1925. The statement has been prepared by the Committee from returns furnished voluntarily by the principal British dye makers, and, though it is not comprehensive, the combined output of the few firms which did not make returns was relatively negligible. The figures in all classes represent the production in market types.

Category.	Blacks. lb.	Blues. lb.	Browns. lb.	Greens. lb.	Oranges. lb.
Direct Cotton Colours	1,763,084	891,137	453,531	190,757	293,045
Acid Wool Colours	1,088,494	890,184	70,548	171,319	453,292
Chrome and Mordant Colours (including Alizarine)	900,462	442,010	700,550	37,502	539,591
Basic Colours	34,658	307,388	94,418	145,696	125,555
Sulphur Colours	4,826,717	327,234	764,087	200,878	9,724
Vat Colours (including Indigo)	113,762	6,851,286	11,047	6,604	27,876
Dyestuffs for Lake Making	141	—	—	85,745	—
Oil, Spirit and Wax and Miscellaneous Colours	420,858	213,344	43,179	1,402	14,642
Aggregate Total	9,148,176	9,922,583	2,137,360	839,903	1,463,725

Category.	Reds. lb.	Violets. lb.	Yellows. lb.	Total. lb.
Direct Cotton Colours	706,269	67,316	575,699	4,940,838
Acid Wool Colours	899,679	187,173	737,964	4,498,653
Chrome and Mordant Colours (including Alizarine)	3,204,285	6,578	425,298	6,256,276
Basic Colours	383,987	391,107	227,747	1,710,556
Sulphur Colours	19,725	1,600	75,826	6,225,791
Vat Colours (including Indigo)	72,168	107,444	105,582	7,295,769
Dyestuffs for Lake Making	908,180	—	20,268	1,014,334
Oil, Spirit and Wax and Miscellaneous Colours	25,757	9,258	22,745	751,185
Aggregate Total	6,220,050	770,476	2,191,129	32,693,402

Manchester Coal Products and Chemical Exhibition

Captain Bain on British Industrial Problems

THE National Coal Products, Chemical and Engineering Exhibition, organised by the Manchester Section of the Society of Chemical Industry, was opened in the City Exhibition Hall, Manchester, on Tuesday, and will remain open until Saturday, November 27. The opening ceremony was performed by Captain F. W. Bain, a director of the United Alkali Co., Ltd., in the unavoidable absence of Sir Max Muspratt.

In his opening address Captain BAIN pointed out that the number of entries had of necessity been restricted in some degree on account of difficulties created by the coal strike, but notwithstanding these difficulties the scope and character of the exhibition covered a very important field of scientific endeavour and enterprise, and the Manchester section of the Society of Chemical Industry deserved the warmest praise for the courageous and determined way in which it had carried out the work of organisation.

Unscientific Use of Coal

For the utilisation of coal, as distinct from its consumption as a raw material for the production of steam or its domestic use for heating purposes, Great Britain had many claims to precedence. But our manner of using coal was thoroughly characteristic. On the one hand we had our great record of invention during the nineteenth century. Ours was the first country, for instance, in which gas was produced from coal, and to-day £160,000,000—almost as much as in the mining industry itself—was invested in the gas-producing industry. But, on the other hand, we had to recognise that we gaily acquiesced in the deplorable policy of wastage through smoke. The Coal Commissioners, in their report, pointed out that £290,000 was wasted each year in the smoke from the coal used for Manchester's weekly wash alone.

Captain Bain suggested that our industrial supremacy in the eighteenth and nineteenth centuries was based on three things—the richness and the ease of working of our coal supplies, our geographical situation as the island centre of the civilised world, and our national characteristics of adventure, common sense, and fair dealing. Coal, cheap carriage, and character—these three considerations formed the basis of our prosperity, and the greatest, he insisted, was character. Great Britain, which used to be the workshop of the world, was to-day only one of several workshops. In former days we had the world at our feet. But as our coal became increasingly difficult to obtain we had to meet an ever-increasing competition. Our new coal was more expensive; the growth of the great industrial lands on the other side of the Atlantic and in the Pacific was diminishing our geographical advantage; and the whole story of the coal strike might raise doubts, for the pessimist, as to the continued capacity of our national character to deal with acute industrial difficulty.

Tragedy of Wasted Coal Report

There was, indeed, some justification for the pessimist. There had been the tragedy of the Coal Commission's wasted report—one of the most remarkable official documents of our time; the concentration by both sides, since the issue of the report, on the question of wage—ultimately one of the least important of the many questions discussed in the report; and the division of the industry into two bitterly opposed camps. Finally, there was the growing and, he thought, if persisted in, the dangerous development in industry of entrusting negotiations to skilful advocates with the desire to score points rather than secure agreements.

Although all these considerations, Captain Bain proceeded, afforded some ground for pessimism, he suggested that they were bound, in themselves, to bring about a natural reaction. There were strong grounds for optimism. In the first place, the report of the Coal Commission had dispelled the idea of a "ca' canny" policy on the part of the miners. And no such policy, he was satisfied, was adopted by the workers in the chemical industry. Our mining engineering was probably the best in the world. He thought our chemical engineering also held its own, and in the chemical industry, which included all the products of coal, we still had that spirit of adventure and inventiveness which was so essentially British.

Scientific Salesmanship

What, perhaps, had been lacking, except in a few isolated and somewhat splendid instances, had been, in the first place, the venturing of capital on a large scale on fundamentally new enterprises. The consolidation of common interests and capital, as in the proposed new chemical merger, was justified, he thought, on this ground alone. And, in the second place, there had been a delay in applying the principles of scientific salesmanship. British goods were the best. They knew that because they largely sold themselves. But where conditions of marketing had been carefully studied and exploited their sale had been greatly increased. And yet there was still a great field left for technical exploration, and in that portion of it covered by coal products it was important to remember that out of 147,000,000 tons of coal mined in 1924 only 37,000,000 tons were utilised in gasworks and coke ovens. Something of what had been attempted and accomplished was shown at the exhibition; there was much on the way which could not at present be exhibited, but it was possible that, when next a coal products exhibition was held in the city, developments would have taken place sufficiently vast to revolutionise the coal and coal products industry. It might even be that the change and development would have been so great that Manchester herself might be smokeless.

A Sounder Basis for Fuel Industries

Sir Arthur Duckham, who presided, said that they had heard a great deal about the inefficiency of the fuel industries, but he thought the exhibition itself was a sufficient proof that they were making strides, and were going to make greater strides in the future. If we were to remain a great industrial country we must put our fuel industries, including the getting of fuel, upon a sound basis. A more economical working was required and more efficient results. He referred to the interest taken by the Government in fuel development, and expressed the hope that the work of the National Fuel and Power Committee would result in a co-ordination of the various activities at work at the present time, in the suggestion of new lines along which their problems might be approached, and in the provision by the Government of assistance where assistance was wanted. Sir Arthur confessed that he was an optimist. It was true, he said, that a great deal had been done abroad, but he was sufficiently optimistic to believe that we in this country could do as well, and that there was something in the British character which carried us a little farther than other people.

Dr. Armstrong, of the British Dyestuffs Corporation, in proposing a vote of thanks to Captain Bain, said that the exhibition was an example of what could be accomplished by co-operation. It was co-operation, he insisted, that was required before everything else in industry to-day; co-operation of every sort between all sections of industry, and particularly between so-called working men and those who employed them, who must realise that their interests were the same.

Mr. L. Guy Radcliffe, the chairman of the Manchester section of the Society of Chemical Industry, seconded the vote of thanks.

The proceedings concluded with the passing of a vote of thanks to Mr. A. McCulloch, the hon. secretary of the Manchester Section of the Society of Chemical Industry, for the very able way in which he had organised the Exhibition.

Notes on the Exhibits

The work of organising the exhibition was largely in the hands of Mr. L. Guy Radcliffe, M.Sc.Tech., F.I.C., chairman of the Manchester Section of the Society of Chemical Industry, and Mr. A. McCulloch, A.I.C., hon. secretary of the Section, assisted by the Sectional Committee.

Exhibits from Universities and Research Bodies

An exhibit by the Department of Fuel Technology in the University of Sheffield was broadly divided into two sections, one dealing with coke and the other with coal. The Department of Coal, Gas and Fuel Industries (with metallurgy) of

the University of Leeds exhibited photographs of the Corbet-Woodall carbonisation plant, which is in use at the University. Sections and specimens of cokes from coals carbonised in this plant were shown.

The Mining Research Laboratory of the University of Birmingham, which is financed by the British Colliery Owners' Research Association, exhibited the results of researches on the hydrogenation, spontaneous combustion, and other chemical and physical properties of various types of coal, the investigation of analytical methods, etc. The exhibit shown by the Lancashire and Cheshire Coal Research Association indicated the research and routine work carried out by that organisation. A portion of the exhibit showed a complete investigation upon a coal seam. The Fuel Department of the Manchester College of Technology presented, among other things, an exhibit of a test on refractory materials shown by test pieces which had been taken at various stages of the test for evaluating the properties of refractory materials used in the construction of carbonising plant.

The Fuel Research Division of the Scientific and Industrial Research Department exhibited photographs of various types of plant available and records of experimental data obtained from certain other plants and processes. Apparatus used in research work, together with specimens, were also shown, including the Gray-King low-temperature carbonisation assay of coal; the measurement of the emission of smoke from boiler chimneys; a series of fractions of low-temperature tar; Berginised coal products; and specimens illustrating a study of the ash in coal, embracing X-ray work and the fusion point of ash. The centre exhibit was flanked by various models which had been very kindly loaned by a number of firms, and included among these were models of the Woodall-Duckham carbonisation plant, a model of a froth flotation unit, models of brick and stone dusting plant manufactured by William Johnson and Sons, Ltd., of Leeds, a steel head designed by Dr. Myer of Manchester University, an auxiliary gasworks plant manufactured by Parkinson and Cowan, a model of a National gas producer, and a model and photographs of the Typhoon agitator, manufactured by Christie and Grey, Ltd.

Tar Products

Hardman and Holden, Ltd., of Manchester, showed a selection of products which they obtain from coal tar by the tar distiller, including various grades of solvent naphtha required by the rubber trade, heavy naphthas suitable for the paint and varnishing industries, prepared tars suitable for road work, together with cresylic acid and creosote oils for specific purposes. In addition, a selection of coal tar products were shown which formed the raw material for the manufacture of numerous derivatives. The use of prepared tar for road purposes is a subject which has only comparatively recently received attention, and the British Road Tar Association had an exhibit intended to serve as an information bureau to those interested in road work.

Alan Johnston and Partner showed various specialised products which they manufactured, such as anti-corrosive and anti-fouling paints suitable for application to iron and steel work, oxide and metallic paints, wood preservatives, disinfectants, etc. The Anglo-Persian Oil Co., Ltd., showed a collection of their products in such a form as to demonstrate the regular progress of the refining process from the original crude oil to the final derivatives.

Industrial Plant and Apparatus

Meldrums, Ltd., exhibited a variety of boiler fittings; and acid resisting metal centrifugal pumps, pipe lines, and other plant for use in acid work. The Crosthwaite Engineering and Furnace Co., Ltd., had on view a patent mechanical stoker and self-cleaning furnace, together with their indestructible fixed forced draught furnace. Bolton's Superheater and Pipeworks, Ltd., exhibited a new patent boiler feed pump, superheaters specially designed for Lancashire, Cornish and watertube boilers, and much other apparatus.

G. and J. Weir, Ltd., of Glasgow, exhibited a Monel metal hydro-extractor used for the drying of sulphate of ammonia; and also specimens of the alloy. Thomas Broadbent and Sons, Ltd., exhibited working models of centrifugals used in industry for such products as salts, nitrates, crystals, anthracene, naphthalene and ammonium sulphate, etc. The Thermal Syndicate, Ltd., sole manufacturers of Vitreosil ware (fused quartz and silica), exhibited muffle linings for use in high temperature gas and electric furnaces; protection sheets and tubes for thermo-couples; chemical and laboratory ware, etc. For those engaged in the analysis of fuel, the stands of Negretti and Zambra, and Baird and Tatlock, were of considerable interest, a great variety of apparatus being shown.

Sir W. H. Bailey and Co., Ltd., exhibited their two-stage air compressor and slide-valve type vacuum pump and direct action steam pump (shown working), and other apparatus. West's Gas Improvement Co., Ltd., showed photographs of installations of the Glover-West system of carbonisation in vertical retorts. A portion of a Glover-West vertical retort was also on view. The Fusion Corporation, Ltd., exhibited a working model of the Fusion low-temperature retort, which can be employed for the treatment of coal, cannel, oil shales, and peat, for the recovery of a pulverised residue which can be made into briquettes for household purposes, or powdered fuel. Spencer-Bonecourt, Ltd., exhibited a small town's gas fired boiler in actual operation.

Nobel's Explosives' exhibit comprised an historical survey of explosives for mining purposes generally, and a large model of a coal seam showing an explosive charge in position. Varcoes China Clays, Ltd., showed a model china works in action pumping and purifying china clay. The Salt Union, Ltd., exhibited a model of the Windsor Vacuum Works, where pure dried vacuum salt is manufactured without touching by hand. Samples of a large number of the products manufactured by the company were also shown.

S. H. Johnson and Co., Ltd., had on view various types of filter presses; and a vortex mixer with a steam jacketed shell of mild steel and self-contained steam engine for driving the mixing vane. The Guelph Patent Cask Co., Ltd., exhibited a number of their casks, combining lightness with strength.

Meters and Measuring Devices

A number of firms exhibited measuring devices. Lea coal meters in actual operation on a Babcock and Wilcox chain-grate stoker were exhibited by the Lea Recorder Co., Ltd., these meters being designed to measure the consumption of coal. Electroflo Meters Co., Ltd., of London, showed a complete boiler control panel, with 15 in. diameter steam flow indicator, and electrically operated fluid overflow meter for the measurement of high and low pressure gas, steam, water and oil. George Kent, Ltd., showed meters measuring output of gas; the Mark oil meter for measuring practically any oil; boiler load indicators and recorders; steam meters; telerecorders for the transmission of records at a distance, etc. Ronald Trist and Co., Ltd., exhibited sectional models designed to maintain a constant feed water level.

Benn Bros., Ltd., Publications

The name of Benn Bros., Ltd., as publishers, is well known to all who are engaged in the coal and allied industries. This firm has published within the last two or three years a most valuable selection of books on coal, oil and gas. In addition, their chemical engineering series have attracted widespread attention. They are publishers of *The Gas World*, *The Gas World Year Book*, THE CHEMICAL AGE, and *The Chemical Age Year Book and Directory*. At their stand they showed a complete range of these books as well as current numbers of their various periodicals.

A large stand was occupied by the Society of Chemical Industry, at which all particulars could be obtained regarding membership of the Society and also of the newly-formed Fuel Section. The Society also exhibited its publications. The British Chemical Plant Manufacturers' Association had an information bureau at the Exhibition.

The Mastabar Belt Fastener Co., and W. T. Nicholson and Clipper Co., exhibited various types of machines for the fastening of belts, as well as various types of belt fasteners. Mr. Edgar Morton, M.Sc., lecturer in applied geology at Manchester University, on behalf of that department of the University, exhibited results of research work into the coal resources of Great Britain. The Manchester Corporation displayed, among other things, a complete gas-heated furnace in operation.

Chemical Trade Returns for October

Decrease in Exports: Small Increase in Imports

THE Board of Trade returns for October show a small increase of chemical imports and a fairly considerable decrease of exports as compared with the corresponding month of last year. For the ten months ending October 31 there was an increase in imports and a decrease in exports as compared with the similar period in 1925. The detailed figures are as follows:—Imports of chemicals, dyes, drugs and colours for October, £1,179,581, an increase of £18,458 on 1925; exports for October, £1,746,089, a decrease of £342,656; imports for ten months ending October 31, £12,473,106, an increase of £643,521; exports for ten months, £18,562,727, a decrease of £1,471,688. Exports of imported merchandise during October amounted to £69,986, a decrease of £21,376, while for the ten months ending October 31 the figure was £838,751, a decrease of £179,621. An analysis of the figures is given below:—

Imports

	Quantities. Month ending October 31. 1925.	1926.	Value. Month ending October 31. 1925. £	1926. £
CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Acetic ..... tons	912	870	38,913	31,626
Acid Tartaric ..... cwt.	4,929	2,210	18,100	10,992
Bleaching Materials ,,	10,853	16,310	10,179	17,634
Borax..... ,,	7,784	1,627	8,929	1,710
Calcium Carbide... ,,	79,414	40,556	55,325	26,921
Coal Tar Products . value	—	—	3,562	94,072
Glycerine, Crude .. cwt.	200	524	550	1,709
Glycerine, Distilled ,,	404	32	1,462	132
Red Lead and Orange . Lead..... ,,	1,628	3,357	4,552	6,479
Nickel Oxide..... ,,	3,047	52	16,678	310
Potassium Nitrate ,,	14,659	10,366	16,555	11,449
All other Compounds ..... ,,	257,506	216,611	61,342	62,394
Sodium Nitrate ... ,,	123,666	113,446	74,428	72,646
All other Compounds ..... ,,	18,656	85,000	16,577	57,101
Tartar, Cream of .. ,,	4,407	3,962	16,201	12,575
Zinc Oxide ..... tons	966	857	33,300	29,548
All other Sorts .... value	—	—	222,192	289,010
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ..... oz.	128,076	94,168	13,333	7,821
Bark Cinchona .... cwt.	2,547	2,247	13,768	9,182
Other Sorts .....value	—	—	253,723	131,930
DYES AND DYESTUFFS—				
Intermediate Coal Tar Products ..... cwt.	77	—	784	—
Alizarine ..... ,,	233	43	5,583	2,416
Indigo, Synthetic.. ,,	—	—	—	—
Other Sorts ..... ,,	2,035	2,782	38,912	76,029
Cutch ..... ,,	6,153	3,725	10,552	6,454
All other Extracts ,,	2,210	1,807	8,904	7,377
Indigo, Natural ... ,,	—	—	—	—
Extracts for Tanning ,,	54,807	73,753	51,552	71,901
PAINTERS' COLOURS AND MATERIALS—				
Barytes, ground .. cwt.	73,994	53,920	17,692	12,791
White Lead (dry).. ,,	13,750	16,017	29,281	30,863
All other Sorts .... ,,	72,719	78,326	118,194	96,509
Total of Chemicals, Drugs, Dyes and Colours .....value	—	—	1,161,123	1,179,581

Exports

CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Sulphuric .... cwt.	1,836	2,093	2,408	2,664
Acid Tartaric ..... ,,	1,734	1,330	9,726	7,028
AMMONIUM Chloride . tons	276	259	9,180	5,149
Ammonium Sulphate—				
To France ..... tons	990	—	11,534	—
Spain & Canaries ,,	10,214	503	121,491	5,656
Italy..... ,,	1,395	—	16,485	—
Dutch East Indies ,,	200	145	2,460	1,626
Japan..... ,,	8,292	697	99,458	8,090
British West India Islands (including Bahamas) & British Guiana.. tons	573	151	7,488	1,752
Other Countries ,,	4,718	4,089	55,830	46,112
Total ..... ,,	26,382	5,585	314,746	63,236
BLEACHING POWDER cwt.	36,461	40,220	16,877	18,810

	Quantities. Month ending October 31. 1925.	1926.	Value. Month ending October 31. 1925. £	1926. £
COAL TAR PRODUCTS—				
Anthracene ..... cwt.	—	1,000	—	500
Benzol and Toluol gall.	3,923	50	401	6
Carbolic Acid ..... cwt.	14,281	8,140	22,306	13,928
Naphtha ..... gall.	8,681	1,460	875	213
Naphthalene ..... cwt.	405	406	387	412
Tar Oil, Creosote Oil, etc. ..... gall.	3,769,639	302,080	114,799	9,662
Other Sorts ..... cwt.	41,854	29,080	27,834	22,979
Total .....value	—	—	166,602	47,700
COPPER, Sulphate of.. tons	488	600	11,748	13,613
DISINFECTANTS, INSECTICIDES, ETC. ..... cwt.	40,687	41,729	107,765	108,427
GLYCERINE, Crude .. cwt.	15,885	8,521	44,500	32,802
Glycerine, Distilled ,,	12,543	30,023	48,309	139,038
Total ..... ,,	28,428	38,544	92,809	171,840
POTASSIUM COMPOUNDS—				
Chromate and Bichromate ..... cwt.	1,595	2,218	3,017	4,021
Nitrate (Saltpetre) ,,	1,433	2,394	2,941	4,537
All other Sorts .. ,,	1,063	1,062	13,956	13,603
Total ..... ,,	4,091	5,674	19,914	22,161
SODIUM COMPOUNDS—				
Carbonate ..... cwt.	335,777	318,372	99,024	103,799
Caustic..... ,,	143,807	142,779	115,244	112,064
Chromate and Bichromate ..... ,,	3,662	2,372	5,785	3,615
Sulphate, including Salt Cake..... ,,	212,731	206,122	26,721	27,311
All other Sorts .... ,,	45,613	50,910	60,610	63,131
Total ..... ,,	741,590	720,555	307,384	309,920
ZINC OXIDE ..... tons	126	90	5,095	4,076
CHEMICAL MANUFACTURES, ETC., all other Sorts .....value	—	—	315,871	286,660
Total of Chemical Manufactures and Products (other than Drugs and Dyestuffs) .....value	—	—	1,380,125	1,061,284
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ..... oz.	197,813	234,111	26,151	24,145
Opium ..... lb.	289	267	464	365
All other Sorts ....value	—	—	273,549	278,018
Total ..... ,,	—	—	300,164	302,528
DYES AND DYESTUFFS—				
Products of Coal Tar cwt.	11,615	3,708	74,200	42,286
Other Sorts ..... ,,	5,484	7,225	6,344	7,600
Total ..... ,,	17,099	10,933	80,544	49,886
PAINTERS' COLOURS AND MATERIALS—				
Barytes, ground .. cwt.	6,816	5,862	2,735	2,376
White Lead (dry).. ,,	6,753	2,907	15,771	5,768
Paints and Colours, ground in Oil or Water ..... ,,	43,099	48,369	103,247	109,320
Paints and Enamels Prepared ..... ,,	32,219	34,631	104,792	104,358
All other Sorts .... ,,	55,408	52,122	101,367	110,569
Total ..... ,,	144,295	143,891	327,912	332,391
Total of Chemicals, Drugs, Dyes and Colours .....value	—	—	2,088,745	1,746,089

Re-exports

	Quantities. Month ending October 31. 1925.	1926.	Value. Month ending October 31. 1925. £	1926. £
CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Tartaric ..... cwt.	61	56	386	375
Borax..... ,,	1,540	12	1,771	15
Coal Tar Products . value	—	—	78	8
Glycerine, Crude .. cwt.	—	100	—	475
Glycerine, Distilled ,,	7	—	33	—
Potassium Nitrate ,,	169	38	246	61
Sodium Nitrate ... ,,	5,180	508	2,973	319
Tartar, Cream of .. ,,	407	435	1,715	1,717
All other Sorts .... value	—	—	16,391	11,714
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ..... oz.	16,515	15,640	2,362	1,825
Bark Cinchona ... cwt.	714	465	5,752	3,634
All other Sorts .... value	—	—	44,679	37,220
DYES AND DYESTUFFS—				
Cutch ..... cwt.	1,261	708	2,559	1,118
All other Extracts ,,	244	403	1,701	1,877
Indigo, Natural ... ,,	13	1	384	45
Extracts for Tanning ,,	4,410	1,824	5,042	2,149
PAINTERS' COLOURS AND MATERIALS ..... cwt.	1,073	968	4,885	4,013
Total of Chemicals, Drugs, Dyes and Colours .....value	—	—	91,362	69,986

Liquid Fuel from Coal

The International Conference at Pittsburgh

AT the International Fuel Conference at Pittsburg on Tuesday, the first particulars of which were made known in THE CHEMICAL AGE a fortnight ago, there were 1,000 delegates from ten countries.

Dr. Thomas Baker, president of the Carnegie Institute, in his opening address, said the conference would show that the liquefaction of coal was an accomplished fact, and that there was no longer any cause for alarm in regard to the exhaustion of petroleum. Coal, he said, would remain the chief source of energy for generations to come, but within a generation the present method of carrying raw coal away from the mines to be burnt under boilers, etc., will be discarded. Coal was a vital problem in every corner of the civilised world, and it was high time the mineowner sought assistance from science.

Describing the method of turning coal into oil, Dr. Friedrich Bergius said the process was now an economic success, though it would cost millions of dollars to perfect. The problem of heating coal under pressure with hydrogen taken from the coal itself had been solved and the process made continuous. About 140 gallons of oil, it was estimated, could be obtained from each ton of coal; 35 gallons were required for heating the next batch; there would remain 30 gallons of "No-knock" petrol, and the rest would be petrol, lubricating oil and fuel oil. Dr. Bergius said large plants were being erected in Germany to carry out the process.

Dr. Edwin E. Slosson, director of Science Service, Washington, recalled that 600 years ago the use of coal as fuel in London was a capital offence. One man was even executed for the "crime." Six hundred years hence people would laugh at this generation for thinking that coal was fit for nothing but to burn.

Dr. R. Lessing, London, dwelt on the appalling waste resulting in Britain from the burning of coal which was not cleaned. He calculated that the tonnage of ash in the yearly coal production in the United Kingdom exceeded by 25,000,000 tons the output of iron ore. The cost of the railway transport of this useless material amounted to £5,000,000. Add to this the cost of the handling of the ash, disposal and so forth, and it would be seen that the non-productive expenditure in Great Britain from the burning of coal ranged from £10,000,000 to £20,000,000.

Mr. Walter E. Trent, mining and metallurgical engineer, New York, declared that the process of pulverising coal to the consistency of talcum powder, so that it becomes fluid when heated and runs like water, would be followed by the use of this new coal in internal-combustion engines instead of petrol. In a few weeks' time the first motor-engine to be operated by oil obtained by pulverising coal would make its appearance in Kansas City.

British Trade with Austria

To the Editor of THE CHEMICAL AGE.

SIR,—Despite the fact that Austria has at the present moment in certain British business circles, for certain clearly defined reasons, something of a *mauvaise presse*, there nevertheless does exist in this part of Europe considerable opportunity for British trade. There are numerous British firms who have for many years done, and are still doing, quite successful business.

It is not overstating the case to say that much of the recent unpleasant experience of English firms doing business out here has been the result of a certain laxness in making preliminary investigation. Numerous cases have come to light in which English houses were proved to have taken risks in dealing with Mid-European firms such as they never would have taken in dealing with home firms. The explanation of this lies probably in the necessity of reducing heavy accumulations of stock, even on unusually risky credit terms.

British firms having business relationships with Austria and South Eastern Europe are finding it more and more advisable to become members of the British Chamber of Commerce, Vienna. One of the principal functions of the Chamber is the communication to its members of just that specific local knowledge which is invaluable to all houses exporting from England or the Dominions. The supplying of confidential and first-hand information regarding Austrians, business houses, etc., is a matter of daily routine in the Chamber, and all British firms doing or contemplating business with Austria are invited to get into touch with the undersigned.—Yours, etc.,

THE SECRETARY,
British Chamber of Commerce Inc., Vienna.

British Industries Fair

To the Editor of THE CHEMICAL AGE.

SIR,—Sir Robert Gower's recent timely reminder in your paper that it is not beyond the purse of the "small man" in business to take advantage of the unique opportunities offered by the British Industries Fair, might be usefully supplemented by pointing out that a manufacturer can be represented at the Fair for even less than the £20 for the type of stand of which Sir Robert writes. For £12 he can take what is familiarly known as a "band-box" stand, measuring 6 ft. by 6 ft., or in the Birmingham section for £10 he can obtain counter space, measuring 5 ft. by 5 ft., for a display of samples. A sample display does not even involve personal attendance at the Fair, for I believe the samples will be unpacked, displayed and dusted daily by the officials without extra charge.

These £10 spaces, I am told, are being taken up very well indeed, particularly by firms which have never exhibited in the B.I.F. before and want to "try it out." After all, very little business need be obtained in order to recover this outlay! Big firms, too, would find these spaces useful as an adjunct to their main exhibit for the display of some special line of goods or some article which is just being introduced to the market. There must be plenty of manufactured articles which speak for themselves and are therefore suitable for display in this manner.—Yours, etc.

ARTHUR GREENWOOD.

House of Commons, November 12.

Extension of Beit Fellowships

BY the generosity of Sir Otto Beit, who has promised to place at the disposal of the trustees of the Beit Fellowships for Scientific Research a further sum (estimated at £15,000), the trustees announce they are now in a position to award all the fellowships within their gift for the definite period of two years instead of for one year as hitherto. The fellowships now current were given for two years, and it is anticipated that future awards will be made on that basis. The extension of tenure will greatly enhance the value and confirm the prestige of these fellowships throughout the scientific world. Since 1913 eighteen Beit Fellows in all have pursued their scientific research in the laboratories of the Imperial College at South Kensington.

Oil and Colour Chemists

Papers by Dr. Fox

THE November monthly meeting of the Association was held at the rooms of the National Federation of Paint Manufacturers in London on November 11, Mr. C. A. Klein (president) in the chair. Papers were read by Dr. J. J. Fox on "Solubility of Paint Pigments" and "Cobalt Blue."

Solubility of Paint Pigments

Dr. Fox stated that as the result of many tests taken over several years, where lead poisoning had occurred, it had been found in scores of cases that the solubility considerably exceeded the 5 per cent. laid down for lead compounds. Hence it was not an unfair inference that compounds with soluble lead oxide in excess of the limit were a possible source of danger. The procedure at the Government Laboratory in dealing with paints under the solubility test was first of all to evaporate off the thinners, then treat the residue with petroleum spirit or ether, following with alcohol, benzol, chloroform, or a mixture of these, or of methyl alcohol, benzol, ether, and acetone. Sometimes the extraction was with butyl alcohol or methylene chloride, which was now a commercial solvent boiling at about 40° C., and was not inflammable. All these solvents were not used for the one paint, the investigators, of course, using their discretion to decide which would be the most suitable for the particular case. At the worst, a small percentage of varnish gums or polymerised oil would remain. When the extracted residue was dry, one gramme is taken, crushed, and moistened with a few drops of alcohol, thus enabling the extracted pigment to be brought into proper contact with the 0·25 per cent. hydrochloric acid.

It was sometimes asked if a painter could tell whether the paint he was going to rub down was a lead paint within the meaning of the Act. This was not so difficult as might at first sight appear, and it could be tested by an intelligent clerk of the works or foreman in the following way: The test would require a nickel spoon, a 2 oz. photographer's measuring glass, a casserole (about 75 c.c.), some test tubes 6 in. by ¾ in., 5 per cent. acetic acid and 10 per cent. potassium chromate. Take a level spoonful of the scrapings, put them in the casserole, cover them with 1 oz. of the acetic acid and heat the liquid to boiling. The liquid was kept simmering for about 5 minutes, stirring the solid in the liquid, and was then cooled. The supernatant liquid could then be poured off into a test tube and cooled, and about 2 c.c. of the potassium chromate was added to obtain the usual precipitate of lead chromate. If the paint contained white lead, basic sulphate, or any form of soluble lead oxide, the test would show it and so give the master painter warning that his paint contained soluble lead oxide. This test was reduced to the simplest proportions and could be used by anyone, the cost of the apparatus being only a few shillings. He put it forward as a suggestion.

The President said that this subject had been attracting attention and the assistance of Dr. Fox would be most helpful. The chemists at the Government Laboratory were at all times ready to assist the trade to the fullest extent and the paper was another instance of the broad-minded attitude adopted. The Home Office solubility test was excellent as a piece of practical legislation; it has proved itself in the pottery industry, but whether it would prove of the same value in the paint industry remained to be seen. In the absence of any other, however, the industry was called upon to try it. So far as the rough test which Dr. Fox had outlined was concerned, he would like to ask him whether he thought it was perfectly sound to take a pigment extracted from a paint and compare the solubility of that pigment in the human body with that of the lead in paint manufacture, which latter was taken into the body as a dry paint and not as an extracted paint. Further, the size of the particles must be taken into account. Again, in regard to the scrapings, it might be that the last two coats on a job were leadless paints and only the first one a lead paint. The sandpapering might not penetrate to the first coat.

Dr. Fox said this would be in favour of the master painter. He had not seen any statement with regard to the effect on the human being of inhaling pigment dispersed in an organic medium, but it must be regarded as colloidal. It was known that dust of colloidal silica when inhaled was more dangerous than sharp particles of quartz. The rough test he had outlined was playing for safety, and he suggested that it would give the master painter an indication of whether he was running any risk.

Cobalt Blues

Dr. Fox in this paper said that for some time past cobalt blues had fallen behind for paint pigments, mostly, he thought, on account of their relatively higher cost and partly because of the alleged greater brilliancy of ultramarine. He did not know whether this latter statement was justified in practice, for there was no obvious reason for supposing that ultramarine would be more brilliant in all circumstances. Whilst their expense might have driven them out of the paint industry, cobalt colours still retained their place for artist's colours, particularly water colours, and there was good ground for this. They were permanent and in general resisted the action of atmospheric impurities, besides being brilliant and mixing well with other pigments. Although smalt had been known and used for centuries, cobalt blue of present-day commerce was modern. Being resistant in general to acids and alkalis, its use as a pigment in the modern nitrocellulose varnish or enamel was clearly indicated. In fact, it might be said that the industry of enamelling motor car bodies with nitrocellulose varnishes was likely to bring into prominence once more the valuable properties possessed by cobalt blues, greens, and the violets of stability to light and to the acidic constituents of varnish, whether present in the varnish or developed by age, as well as to the marked absence of change in badly contaminated air.

The oldest of the cobalt blues was smalt, which was essentially a silicate of cobalt and potassium, and he believed that the process of manufacture remained essentially the same to-day as it was generations ago. It must be admitted, however, that the chemistry of the cobalt silicates was not at all worked out and all sorts of shades of colour could be obtained from the same solutions by slightly varying the conditions. For example, if a strong boiling solution of a cobalt salt was added to a strong boiling solution of sodium silicate, a blue silicate was obtained all through to ignition. On reversing the procedure and adding the hot sodium silicate to the hot cobalt solution, a more violet precipitate formed which, on gentle drying, became pink, and although it ultimately became blue on strong ignition, it had more of a red shade. The foregoing blues, however, were important for colouring enamels and glazes. Their more immediate concern, however, was paint and varnish pigments.

The first of the cobalt blues to consider was Thénard's blue. Dr. Fox dealt in detail with cobalt violets and Rinmann's green, and exhibited some specimens from the Beaverhall Colour Co., Edinburgh.

Mr. Noel Heaton said he was surprised to hear Dr. Fox say that cobalt blues were coming in again. Personally he hoped it was true but he was a little sceptical. The price was many times that of ultramarine blue and a technical difficulty was that they had not the staining power nor the texture required for pigments.

Mr. R. P. L. Britton said it was refreshing to hear Dr. Fox's optimism about cobalt blue, because he himself had been very unfortunate in the past and had given them up as quite hopeless for use in ordinary media.

Dr. Fox said he was inclined to think that in the case of some of the high-class cellulose finishes the extra cost of cobalt blue would not be so serious as might be imagined. The cost of cobalt blue was many times that of ultramarine, but cobalt blues were now obtainable at much less than the former 30s. per lb. He suggested that there was work for the newly established Paint Research Association to do in this connection and particularly in regard to increasing the opacity of cobalt blues.

£25,000 for Research in Cambridge

THE Vice-Chancellor of Cambridge University has published a communication received from the Committee of the Privy Council for Scientific and Industrial Research, stating that funds have been placed at their disposal by the Empire Marketing Board, which will enable them to offer a further grant not exceeding £25,000 to the University, for the building and equipping of an extension to the Low Temperature Research Station. Upon certain conditions set out in the letter, the University authorities are asked to state whether they will accept the offer.

Annual London Dinner of Chemists

Mr. Carr on Unification Tendencies

THE annual dinner of chemists held under the auspices of 14 societies connected with chemical industry and science took place at the Connaught Rooms, London, on Friday, November 12, under the chairmanship of Professor F. G. Donnan, F.R.S. There was a company of over 400 and the dinner was followed by dancing.

Sir Duncan M. Kerly, K.C., in proposing the "Profession and Industry of Chemistry," dealt with the trial of technical actions in courts of law, and claimed that the procedure tended to secure justice for all parties. In industry, he remarked, it was sometimes said that research did not pay, but speaking with 30 years' experience of observation as an interested spectator of industry, he distinctly claimed that research did pay. What had been wanting in the past and perhaps might still be wanting in some directions was that the leaders of our big businesses must learn to understand its importance.

Professor F. G. Donnan, whose name was coupled with the toast, together with that of Mr. F. H. Carr (President of the Society of Chemical Industry), referred to the work of the late Lord Moulton as illustrating the ability of judges to deal with technical cases. On the general position of chemistry and industry, Professor Donnan said that chemists had the future of the world in their hands, and it was essential for them to combine with the engineers in the interests of the community. So far as chemistry in this country was concerned, he would like to see the co-operation and effort for industrial purposes that was shown during the war. If such efforts could be put forward to save the country then, it certainly should be possible for a similar effort to be made in peace time.

Progress towards Unity

Mr. F. H. Carr said that this dinner on Armistice celebration day came immediately after the announcement of the unification of the great heavy chemical manufacturers of this country, and to many this scheme was an indication that the great lesson of the war had at last been learned. Many chemists during the war dedicated themselves and their lives to work which it was hoped would prevent the chemical industry of this country from ever again being found wanting to the extent it was found wanting when the war began. Reference had been made to the late Lord Moulton, and he could not help thinking how delighted Lord Moulton would have been to see the great combination in the chemical industry that had just been formed. This combination was of first importance, not only for chemists and chemical industry, but for the whole nation. He would not go into the reasons why that was so—most people present knew them. That combination was only a beginning but it was a very good beginning, because such a unified industry secured the fullest development of the resources of our empire which was necessary for the execution of highly skilled craftsmanship. In our knowledge of science, and chemical science in particular, the British race excelled. The history of science demonstrated that the best ways of exercising and utilising such abilities lay at the very core of most of the social and political problems in this country, and if we were to have a full and abundant existence in this country we must continue to find the best ways of advancement in the application of science. Wonderful progress had been made during the past century in the application of science to industry, and it was impossible not to be amazed by the extraordinary possibilities which science still had in store, awaiting discovery and interpretation. It was upon chemists that the responsibility for carrying on that progress rested. There was another unification with which chemists were concerned, which in a way was just as important, and that was the unification of societies. The subject of chemistry was becoming so intricate that it had been found difficult to prevent the formation of new societies to deal with special branches of the science. That dinner represented 14 societies, but if they were not careful in a few years the number would be 114, and he could not help thinking that one of the factors which would prevent that process going too far was the formation of Chemistry House, the provision of premises with not only a meeting room but committee rooms and if possible rooms for social intercourse, and above all rooms for a library. Such an object was at the bottom of the discussions that had taken place with regard to Chemistry House, and before long the members of the industry would receive a communication through the medium of Dr. Miall, as representing all the chemical societies, relating to a scheme of this nature which it was hoped would be given the fullest possible support. He hoped that as a result of a dinner such as that, where the advantages of unification were apparent, ample support would be given to that scheme.

The final toast was "The Chairman," proposed by Dr. W. R. Ormandy, which Professor Donnan acknowledged.

Chemical Matters in Parliament

Sugar Beet Factories

Mr. Guinness, Minister for Agriculture, replying to Mr. Duckworth (House of Commons, November 10), circulated certain statements regarding the subsidising and capitalisation of sugar beet factories. The total capital (issued shares plus debentures, including Trade Facilities guarantees) of British beet sugar companies, was £5,532,489. As regards individual guarantees made under the Trades Facilities Act, guarantees given amounted to £1,990,000 and loans taken up to £1,880,000. Replying to Mr. Duckworth on November 11, Mr. Guinness stated that in season 1925–26 subsidy was paid to sugar-beet companies in respect of 51,918 tons of sugar (£1,011,640) and of 13,545 tons of molasses (£112,561).

Fertilisers and Feeding Stuffs Bill

Mr. Guinness (House of Commons, November 15) moved the second reading of the Fertilisers and Feeding Stuffs Bill. He said that the bill represented an agreement, arrived at between farmers and traders after long discussion. The existing law in regard to fertilisers and feeding stuffs, embodied in the Act of 1906, had proved unsatisfactory to farmers as being ineffective in preventing adulteration and also as being very unfair to the traders. The new bill proposed improved machinery. It put two obligations on the seller or manufacturer. In the first place, he must supply to the purchaser a statutory statement containing specified particulars as laid down in the Schedule. This statutory statement would enable the purchaser to have analyses made for testing from the point of view of warrant, and where the description proved not to be accurate it would enable the purchaser to get civil redress. The second duty thrown on the seller was to supply before dispatch the prescribed description by markings or otherwise, referred to in the Register. Inspectors would, in future, be allowed to get their samples not from the purchaser, but from the producer or merchant before the products left his premises.

The bill was read a second time, and committed to a standing committee.

Royal Society Medals

THE King has approved of the following awards this year by the president and council of the Royal Society: A Royal Medal to Sir William Hardy, F.R.S., for his pioneer work on colloidal chemistry and the theory of lubrication; a Royal Medal to Professor A. V. Hill, F.R.S., for his distinguished work on the physical and chemical aspects of muscular contraction. The following awards have also been made by the president and the council: the Copley Medal to Sir Frederick Hopkins, F.R.S., for his distinguished and fruitful work in biochemistry; the Rumford Medal to Sir Arthur Schuster, F.R.S., for his services to physical science, especially in the subjects of optics and terrestrial magnetism; the Davy Medal to Sir James Walker, F.R.S., for his work on the theory of ionisation and ionic equilibria in solution; the Darwin Medal to Dr. D. H. Scott, F.R.S., for his contributions to palæophytology, particularly in relation to the period of coal; the Hughes Medal to Admiral Sir Henry Jackson, F.R.S., for his pioneer work in the scientific investigation of radiotelegraphy, and its application to navigation. In addition to the notes given above, it may be stated that Sir Frederick Hopkins, in the course of his biochemical work, has carried out researches on which are based many of our fundamental ideas on the vitamins. Sir James Walker's work on ionisation includes some very important contributions to the theory of amphoteric electrolytes.

From Week to Week

SIR ROBERT HORNE, M.P., has been elected chairman of the board of the Zinc Corporation.

MR. WALTER BUTTERWORTH, senior, M.A., on Wednesday, delivered the presidential address to the Society of Glass Technology.

MR. THOMAS BROUGH, chief designer for Courtauld's, Ltd., delivered a lecture on artificial silk to the Royal Society of Arts on Wednesday.

MR. C. J. POLSON, M.B., Ch.B., M.R.C.S., M.R.C.P., has been appointed assistant lecturer in chemical pathology in the University of Manchester.

THE UNIVERSITY COLLEGE OF THE SOUTH WEST, at Plymouth, has awarded a Simon's scholarship of £80 to Mr. T. E. Symes, B.Sc., for research work in the department of chemistry.

MR. J. ARTHUR REAVELL (The Kestner Evaporating and Engineering Co., Ltd), of London, has arranged to visit India shortly in connection with important industrial developments there.

MR. S. G. M. URE has been appointed honorary editor of the Transactions of the Institution of Chemical Engineers. He will also be responsible for the editorial matter appearing in the Quarterly Bulletin.

ERECTION OF A SUGAR BEET FACTORY in Shropshire depends on a guarantee of 8,000 acres of beet. It is reported that returns up to date indicate that signed contracts for about 5,000 acres have been received.

MR. T. S. EDDIE has been appointed research physicist to carry out research work on electrolytic zinc, holding a scholarship placed at the disposal of Melbourne University by the generosity of the Electrolytic Zinc Co.

MR. CLAUDE RIMINGTON, B.A., of Emmanuel College, Cambridge, formerly of Haberdashers' School, Hammersmith, has been elected to the University's Benn W. Levy research studentship in biochemistry, of the value of £100, for one year.

PROFESSOR A. SMITHELLS, F.R.S., Emeritus professor of chemistry in the University of Leeds, will visit Leeds on November 29 to deliver the open lecture of the Cavendish Society at the University. His subject will be "Fifty Years in Science."

I.G. SHARES to the value of 1,000,000 marks are said to have been sold to British purchasers during the past week. It is of interest that between October 26 and November 4 the value of I.G. shares increased by 60 points, from 325 to 385 per cent.

MR. J. C. FARRANT, general manager, grinding and pulverising offices of International Combustion, Ltd., 11, Southampton Row, London, W.C., left for New York on November 13 on the *Adriatic* in connection with new developments in metallurgical and industrial circles.

PROFESSOR C. O. BANNISTER, in a lecture given recently at Liverpool University, dealt with "Stainless Steel." He drew attention to Sir Robert Hadfield's estimate that the loss to the world's wealth represented by the rusting of iron and steel was about £500,000,000 per annum.

A EUROPEAN ALUMINIUM TRUST has been formed between English, French, German, and Swiss producers. The members are believed to include the British Aluminium Co., the Aluminium Française of France, Aluminium Industry, Ltd., of Switzerland, and the German Aluminium Industry, Ltd.

THE KING will pay a private visit of inspection to the new factory of the Anglo-Scottish Sugar Beet Co. at Colwick, near Nottingham, on November 24. He will have luncheon at the works, and will return to London at 3 o'clock. The factory has a daily capacity of 1,000 tons of sugar and employs 600 men.

SIR ALFRED MOND is to be chairman of a new colliery company formed as the result of the amalgamation of the Amalgamated Anthracite Collieries, Ltd., and United Anthracite Collieries, Ltd. The amalgamation will be carried out by an exchange of shares, the new capital being £4,445,014. Some twenty collieries are involved in the amalgamation.

APPLICATIONS ARE INVITED for the following posts: Assistant Lecturer in the department of chemistry, University College of Swansea. Physical and Inorganic Chemistry. £300. The Registrar, Singleton Park, Swansea. November 27.—Assistant Lecturer on Agricultural Chemistry in the University of Leeds. £300. The Registrar. November 30.—Assistant Chemist for Soil Investigations for the Empire Cotton Growing Corporation, for work in the Sudan. Initial salary, £E.480-550. Dr. E. M. Crowther, Rothamsted Experimental Station, Harpenden, Herts.—Leverhulme Professor of Physical Chemistry in the University of Bristol, vacant at Christmas, 1926, on the resignation of Professor McBain. The Registrar. December 10.

THE PRODUCTION OF SYNTHETIC RESINS is said to be receiving the attention of various chemical companies in Manchester.

MR. RICHARD B. PILCHER, secretary and registrar of the Institute of Chemistry, has been elected president of the Chartered Institute of Secretaries.

RECENT WILLS INCLUDE Mr. Henry Melvill Simons, Cadogan Gardens, Chelsea, a director of the Magadi Soda Co. and other companies, £180,528 (net personalty £177,258).

SIR JOSIAH STAMP, a director of "I.C.I." and chairman of the executive of the L.M.S. Railway, has been appointed to the office of Rede Lecturer in the University of Cambridge.

THE SOCIETY OF CHEMICAL INDUSTRY has accepted an invitation from the American Institute of Chemical Engineers, inviting members of the society to attend a joint meeting of the Institution of Chemical Engineers during the summer of 1928.

NAYLOR BROTHERS (LONDON), LTD., paint and varnish manufacturers, of Slough, are now associated with Nobel Chemical Finishes, Ltd., which, through its connection with Nobel Industries, Ltd., will be involved in the formation of the "I.C.I."

SIR ERNEST J. P. BENN is addressing the Publicity Club of London on Monday next, November 22, at the Hotel Cecil, at 7 p.m. The subject of the evening will be "A Consideration of the Relationship between Trade and Technical Journals, Advertisers and Advertising Agents."

CAPTAIN G. A. LARGE, one of the eight defendants in the charge of conspiring to steal £30,000 worth of palm kernels and other merchandise from Elder, Dempster, Ltd., who was one of the leading figures in the trial of the action now concluded, in Liverpool, was found dead on the railway line at Bidston on Friday, November 12. At the inquest a verdict of suicide was recorded.

MR. R. R. BUTLER, head of the chemical department of Plymouth Technical College, recently delivered, before the members of the Plymouth Institution, a lecture on "Frontiers of Civilisation," in which he pointed out the grave dangers of gas warfare on civilians which threatened mankind in future wars. Civilisation, he said, was at the cross roads, and as individuals they had to consider very seriously whether politicians were to be allowed to plunge the country into other wars and make cannon fodder of the people.

THE GRASSELLI MEDAL has been awarded to Dr. Charles Raymond Downs, of New York, at a joint meeting of the American Chemical Society, the American Section of the Society of Chemical Industry, Société de Chimie Industrielle, and the American Electrochemical Society. Dr. Downs was adjudged to have made "the most useful contribution to applied chemistry read before the American Section of the Society of Chemical Industry during the past year." The medal is awarded annually. Dr. Downs's work on catalytic oxidation in the vapour phase was said to have resulted in the commercial production of malic, maleic, and fumaric acids, and more recently in the catalytic oxidation of anthracene to produce anthraquinone, an important intermediate for vat dyes. Dr. Downs, who has for years been associated with the coal tar chemical industry, delivered an address at the meeting on "Some Speculations in Catalytic Oxidation Reactions."

Obituary

MR. PERCY W. COLE, of Cole and Wilson, Huddersfield. He was prominently connected with the chemical and dyestuff industry.

MR. WILLIAM PETER NEWLANDS, of 10, Cricklade Avenue, Streatham, a retired analytical chemist, aged 62, who committed suicide on November 3. At the inquest a verdict of suicide whilst of unsound mind was returned.

M. JEAN BAPTISTE BONNAUD, at Loughborough, aged 88. He had been ceramic chemist to the firm of Bridgewoods, at Burslem, and was also interested in photography. For his work on ceramics he was made an officer of the French Academy.

MR. HAROLD M. SISSONS, chairman of Sissons Brothers and Co., Ltd., paint and varnish manufacturers of Hull, aged 58. He had been chairman of the Federation of Paint, Colour and Varnish Manufacturers and president of the Hull Association. He was a keen advocate of the decimal system. He leaves a widow, a son, Mr. Robert Sissons, now in the business, and two daughters.

MR. ALBERT SHONK, for many years assistant editor of the Abstracts published by the *Journal* of the Society of Chemical Industry, on November 8, aged 45. He early became private assistant to Mr. Watson Smith, then editor of the *Journal*, and was appointed assistant editor in 1905, continuing in that capacity for the society and the Bureau of Chemical Abstracts until his death.

DR. E. R. WATSON, principal of the Technological Institute, Cawnpore, who committed suicide at an hotel in Kensington while home on leave from India. A verdict of suicide during temporary insanity was returned at the inquest, it being established that he had taken ammonium cyanide. His health had recently been bad. Among his publications was a book on *Colour and Chemical Constitution*.

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The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

259,631. Fermentation Processes for the Production of *N*-butyl Alcohol and Acetone. A. P. H. Desborough, A. C. Thaysen, and B. M. Green, Royal Naval Cordite Factory, Holton Heath. Application date, May 6, 1925.

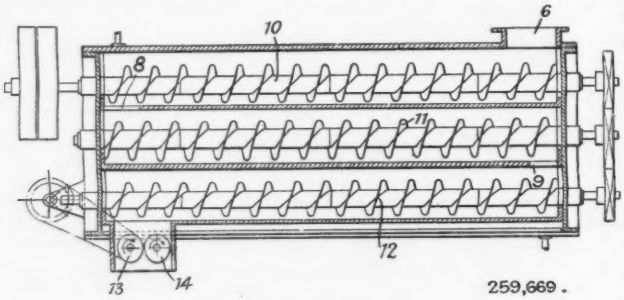
This process is for the production of *n*-butyl alcohol and acetone from Jerusalem artichokes. It is known that fermentations using micro-organisms capable of producing *n*-butyl alcohol and acetone from carbohydrates, produce very little when applied to mashes from Jerusalem artichokes. Experiments have been made to determine how far this is due to the non-fermentability of the bulk of the carbohydrates without preliminary conversion into reducing sugars, by subjecting the mash to preliminary hydrolysis before fermentation, and it has been found that dilution increased the yield of oil. The optimum concentration is 20-30 parts of tubers to 80-70 parts of water. It is further found that the lower yield of an undiluted hydrolised mash is due to the concentration of lævulose, and that a full yield of oil can be obtained by the addition of starch to the artichoke mash. The artichokes are therefore treated so that the original carbohydrates are inverted to form reducing sugars the concentration of which is reduced so that they exert no inhibitory action on the micro-organisms.

259,641. Acetic Acid, Manufacture of. H. Dreyfus, 8, Waterloo Place, London, S.W.1. Application date, June 13, 1925.

Methyl formate can be transformed continuously into acetic acid by passing the vapour at 100°–400° C. and at pressures up to 200 atmospheres over catalysts such as copper oxide, tin oxide, lead oxide, copper acetate, zinc oxide, zinc acetate, zinc methylate, aluminium methylate or tin methylate. Potassium or sodium methylate may also be present.

259,669. Neutralising the Free Acid in Commercial Sulphate of Ammonia. Coke and Gas Ovens, Ltd., Holophane House, Vincent Square, London, S.W.1, and R. Pearson, Topcliffe House, Tingley, Yorks. Application date, July 14, 1925.

Three long horizontal compartments 1, 2, 3 are arranged one above the other and are heated by a steam jacket along



259,669.

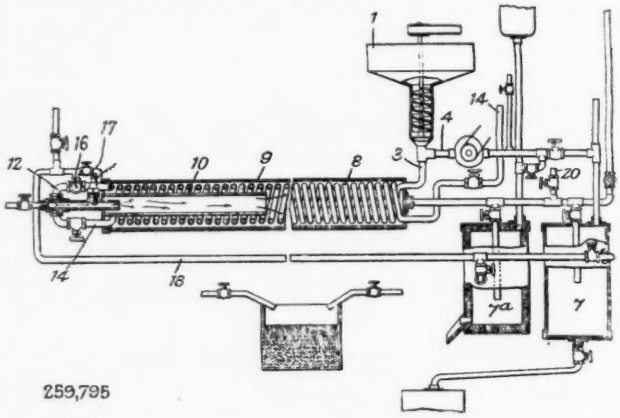
each side. The compartments contain screw conveyors 10, 11, 12, and the sulphate is admitted at 6 and passes out through a pair of rollers, 13, 14. Openings 8, 9 are provided for the passage of the sulphate from one compartment to the next. The neutralisation is effected by ammonia which flows through the apparatus in counter-current. Alternatively, the neutralisation can be effected by soda ash or other alkali introduced with the sulphate.

259,643. Hydrogen Practically Free from Carbon Monoxide Starting from Water Gas, Production of. G. Cicali, 109-2, Via Castiglione, Bologna, Italy. Application date, June 15, 1925.

Water gas containing over 20 per cent. of hydrogen, and up to 45 per cent. carbon monoxide is subjected to a preliminary purification to obtain a mixture rich in hydrogen and only a small amount of carbon monoxide. Nitrogen is then added to the mixture in such amount that the total volume of nitrogen and carbon monoxide bears the same ratio to the volume of hydrogen as the original volume of carbon monoxide bore to the original volume of hydrogen. The mixture is then partly liquefied under high pressure in a column, pure hydrogen being obtained. The plant for effecting the purification is described.

259,795. Carbonaceous Materials, Method of Treating. W. E. Trent, 1131, Whitehall Building, 17, Battery Place, New York. Application date, December 3, 1925.

The process is for treating coal or oil shale in a pulverised condition to obtain volatile by-products and carbon, or alter-



259,795

natively, a maximum yield of gas. The coal is distilled while in suspension in a current of gas, and a fluxing agent is previously mixed with it to form a slag with the ash. The carbon and slag are afterwards separated. Finely powdered coal with or without a flux such as calcium or iron oxide or sodium carbonate passes from a hopper 1 to a feed pipe 3 which is in communication with a gas or liquid conveying pipe 4 so that the coal and flux are fed in suspension in the gas or liquid into the coil 8. The combustion chamber 9 contains a refractory element 10 in which combustion takes place to heat the coil 8. Some of the liberated gas may be withdrawn through the pipe 12 and meets a supply of hot air which has passed through the pipe 14 interwound with the pipe 8, the mixture being burnt in the tube 10. The remainder of the gas passes through pipe 18 to a tank 7 into which water is introduced through pipe 20 to bring down the carbon and slag particles. Alternatively the solid particles may be collected dry in the tank 7^a. The coal may be treated by direct contact with the flame by closing valve 17 and opening valve 16. Oils and gases from the tank 7^a pass to the tank 10. The carbon particles may be separated from the slag by any method depending on the difference in specific gravities. The carbon may then be mixed with the oils and tar removed from the gases to obtain a liquid fuel.

259,889. Deflocculating Solids, Process of. G. W. Acheson, 45, Roseland Avenue, Caldwell, Essex Co., N.J., U.S.A. International Convention date, March 8, 1926.

In the usual process of deflocculating substances such as graphite, carbon black, clay, pigments, lead arsenate, sulphur, etc., with the aid of an agent such as tannin, the agent is adsorbed by the solid. If the process is carried too far, reflocculation occurs, and the colloidal particles reunite. In this invention the solid, *e.g.*, graphite in paste form, is mixed with about 6 per cent. of tannin and a small amount of ammonia, and treated till all the tannin is adsorbed. A fur-

(*Continued on page* 501)

(*Continued from page* 500)

ther quantity of tannin is added, and the process repeated until a substantial proportion of the solid has been deflocculated and then re-flocculated. The material may then be deflocculated again by adding a different deflocculating agent, *e.g.*, infusions of grasses, or sodium silicate, and treating again.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention: —237,257 (T. Chmura), relating to deoxygenating air by combustion of sulphur or its incompletely oxidised compounds, see Vol. XIII, page 307; 244,481 (F. Rantjen and M. Ragg), relating to manufacture of pigments, see Vol. XIV, p. 185; 255,811 (Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler), relating to production of 2-hydrazino-5-nitropyridine, see Vol. XV, p. 331.

International Specifications not yet Accepted

257,910 and 257,912. HYDROGENATING COAL, ETC. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 2, 1925.

257,910. The formation of coke is avoided by starting with wet coal or other carbonaceous material, or adding water during hydrogenation. Thus, brown coal producer tar containing 40-50 per cent. of water is vaporised and mixed with hydrogen, and then passed over a molybdenum catalyst at 200 atmospheres and 450°–500° C.

257,912. Coal, mineral oils, tars, etc., are treated with steam with or without hydrogen under pressure, and at a temperature above that at which it commences to decompose. The sulphur is converted into sulphuretted hydrogen, and passes into the condensed water. The residue is then subjected to destructive hydrogenation. Thus, mineral oil containing 3·8 per cent. of sulphur is treated with iron or copper or their oxides, and the sulphur reduced to 1·0–1·4 per cent. The oil is then treated with steam, with or without hydrogen, at 200 atmospheres and 500°–550° C., in the presence of iron and manganese. The sulphur is thus reduced to 0·05–0·1 per cent. and the oil is then treated, in presence of a catalyst containing molybdenum, with hydrogen at 200 atmospheres and 500° C.

257,917. ACTIVE CARBON; PHOSPHORUS. Soc. pour l'Exploitation des Procédés E. Urbain, 134, Boulevard Haussmann, Paris. International Convention date, September 4, 1925.

Phosphorus or phosphoric acid is produced from monocalcium phosphate by reducing at high temperature with carbon or the residue of calcined peat, wood, animal matter, etc., the carbonaceous matter being in excess. The residue is an active carbon, which is more active the smaller the proportion of carbon used for the reduction. The activity is increased by extracting the tricalcium phosphate present.

258,241. RECOVERING SULPHURIC ACID AND RESINS FROM OIL-REFINING SLUDGES. W. Demann, 8, Schulstrasse, Hordel, Bochum, Germany. International Convention date, September 9, 1925.

The acid sludge of oil refining is treated with (1) Fuller's earth, silica gel, animal charcoal or other adsorbents; (2) substances which coagulate therein such as phenol, sodium phenate, formaldehyde or alkali silicates; (3) water and a heavy benzine, "Tetralin" and like substances to adsorb or coagulate the resins. Thus, the sludge may be diluted with 30 per cent. water, and 30–50 per cent. of heavy benzine, heavy benzole, or "Tetralin" added. The resin forms a single lump, and the acid and benzine are decanted. The resin is pressed or centrifuged, and ground with gas liquor, ammonia, or caustic soda. Treatment according to (1) or (2) above may follow.

258,243. SEPARATING HAFNIUM AND ZIRCONIUM. Naamlooze Vennootschap Philips' Gloeilampenfabrieken, 6, Emmasingel, Eindhoven, Holland. International Convention date, September 12, 1925. Addition to 235,217. (See THE CHEMICAL AGE, Vol. XIII, p. 175.)

A solution of the mixed phosphates in concentrated sulphuric acid is mixed with other hafnium and zirconium salts such as a solution of the oxides in concentrated sulphuric acid, and water is then added, yielding a precipitate relatively richer in hafnium.

258,272. HYDROGENATING COAL, ETC. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 10, 1925.

Catalysts for the destructive hydrogenation of coal, tars, oils, etc., which are not poisoned by the impurities include silver, copper, cadmium, lead, bismuth, tin, or their compounds, or difficultly reducible oxides other than alkalies and alkaline earths, but including lithium oxide and magnesium oxide, *e.g.*, rare earths, alumina, boric acid, silica, titanium oxide, or other oxides of the fourth group, oxides of zinc, uranium, manganese, and vanadium. Sulphuretted hydrogen or water gas may be employed in place of hydrogen. In an example, coal, tar, or fuel oil mixed with hydrogen and nitrogen is passed at 500° C. and 200 atmospheres pressure over porous materials impregnated with lead nitrate, stannous chloride, silver nitrate or cupric hydroxide, with or without iron and cobalt compounds. A product having a specific gravity 0·85 is obtained, the lighter fractions of which constitute a motor fuel.

258,289. UREA-FORMALDEHYDE CONDENSATION PRODUCTS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 11, 1925.

Condensation products from 2-3 molecular proportions of formaldehyde and 1 molecular proportion of urea are formed in aqueous solution in which p_H is continuously maintained at a value between 4 and 7, with the aid of mixtures of acetic acid and sodium acetate, citric acid and sodium citrate, chloracetic acid and trisodium phosphate, mono- and di-sodium phosphates, or boric acid and sodium acetate, sodium bitartrate or potassium bioxalate. The products are hardened at 50°–100° C., and may be used for the production of plates, prisms, lenses, etc.

258,550. LIQUID FUEL. E. V. Bereslowsky, 70, Lenox Avenue, New York. International Convention date, September 17, 1925.

A motor spirit consists of gasolene 1 gallon, containing 20 grams of diamino-mesitylene in 20 c.c. ethyl alcohol. The compression may be raised 20 lb. without causing knocking.

258,553. HETEROCYCLIC COMPOUNDS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. (Assignees of Farbwerke vorm. Meister, Lucius, and Brüning, Hoechst-on-Main, Germany.) International Convention date, September 15, 1925. Addition to 251,270. (See THE CHEMICAL AGE, Vol. XV, p. 59.)

A heterocyclic ketone, carbinol, or methane derivative which contains a methyl or methylene group in the *o*-position to the ketone, etc., carbon atom is passed over a highly porous body at a high temperature with or without air or oxygen, and a further catalyst. Thus, the vapour of 2-*m*-xylyl-5-*m*-xyloyl-pyridine passed over active carbon at 400°–420° C. yields 1-*m*-xylyl-7-methylbenzo-quinoline; 3-*o*-toluoyl-*N*-ethylcarbazole in a current of nitrogen yields *N*-ethyl-naphthocarbazole; *o*-toluoyl-diphenylene sulphide yields a yellow-green anthracene derivative.

258,563. DYES. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, September 16, 1925. Addition to 237,375.

Specification 237,375 (see THE CHEMICAL AGE, Vol. XIII, p. 230) describes the treatment of 2:5-diarylido-benzoquinones with sulphur halide, and in this invention the sulphur halide is replaced by a mixture of sulphur dihalide and halogen. Solvents or diluents and acid-binding or condensing agents may also be present. The parent materials may contain further substituents in the quinone nucleus or at the nitrogen atoms and may also contain substituents in the arylido residues, such as halogen, alkyl, alkyloxy-, phenyloxy-, nitro-, amino-, alkylamino-, aralkylamino-, arylamino-, hydroxyl-, or carboxyl-groups. The diluent or condensing agent may be nitrobenzene, chlorbenzene, carbon tetrachloride, chlorethane, sulphuric acid, formic acid, acetic acid or anhydride, zinc chloride, or iodine. Several examples of the dyestuffs are given.

258,576. Purifying and Extracting Benzol. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 15, 1925.

Crude benzol is treated at a high temperature and pressure with hydrogen or hydrogen-containing gases in presence of a catalyst. Thus, benzol containing thiophene and hydrogen are passed at 460° C. and 200 atmospheres over a mixture of molybdic acid and zinc oxide. A light coloured product free from unsaturated compounds and thiophene is obtained. Another example is given of the treatment of an oil used for washing gases, for the recovery of pure benzol. The catalysts employed are those used in the hydrogenation of coal and are not liable to sulphur poisoning.

258,608. Hydrocarbons. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 17, 1925.

A methane-containing gas is passed at 600°–900° C. and at a pressure of 50–1,000 atmospheres over a catalyst such as a carbonate, oxide or hydroxide of an alkaline earth metal magnesium, or beryllium, or of selenium, tellurium or thallium, or active silica or charcoal, to obtain liquid hydrocarbons mainly of the benzene series. Coal, tar, or mineral oil distillation gas may be thus treated.

Latest Notifications.

260,940. Manufacture of vat-dyestuffs. I. G. Farbenindustrie Akt.-Ges. November 7, 1925.

260,969. Process and apparatus for the production of carbon disulphide from its elements. I. G. Farbenindustrie Akt.-Ges. November 3, 1925.

260,998. Manufacture of new dyestuffs of the anthanthrone series. Cassella and Co. Ges., L. November 7, 1925.

261,026. Process for arsenising organic compounds. Scheller, Dr. E. November 9, 1925.

261,029. Manufacture and production of condensation products of urea and formaldehyde. I. G. Farbenindustrie Akt.-Ges. November 7, 1925.

261,039. Preparation of solutions, emulsions, pastes, and the like. I. G. Farbenindustrie Akt.-Ges. November 9, 1925.

261,048. Production of complex aurothiosulphate compounds. Dansk Chemo-Therapeutisk Selskab ved Andersen, Siesbye, and Weitzmann. November 7, 1925.

Specifications Accepted with Date of Application

244,078. Gypsum, Process for obtaining products from. Rhenania Verein Chemischer Fabriken Akt.-Ges. December 2, 1924.

249,886. Coking coal, Process and apparatus for. Urbana Coke Corporation. March 27, 1925.

252,028. Aluminium alloys, Process of making. P. Berthelemy and Vicomte H. de Montby. May 11, 1925.

252,110. Tricalcium saccharate rich in sugar, poor in lime and of a very high degree of purity, Process for obtaining. C. Steffen, jun. May 18, 1925.

260,339. Fast dyeings on wool, Production of. J. Y. Johnson. (*Badische Anilin und Soda Fabrik.*) July 27, 1925.

260,346. Pharmaceutical products, Manufacture of. Sir W. J. Pope. July 28, 1925.

260,382. Amino-aryldichloroarsines or amino-arylarsenious oxides, Manufacture of solutions of. G. Newbery and May and Baker, Ltd. August 29, 1925.

260,447. Cement mixed with gypsum, Process for the production of. C. Pontoppidan and S. Buntzen. January 4, 1925.

260,451. Precious metals, Recovery and refining of. A. Gordon. January 11, 1926.

260,452. Coating cast iron with lead, Process for. O. Spengler. January 15, 1926.

260,455. Mineral oil distillates and paraffin wax, Process for the purification of. Burmah Oil Co., Ltd., and R. R. le G. Worsley. January 27, 1926.

Applications for Patents

Biddle, A. Treating caoutchouc latex. 28,344. November 10.

Boedecker, F. Preparation of vanillin and iso-vanillin. 28,521. November 12.

British Dyestuffs Corporation, Ltd., and Payman, J. B. Manufacture of dyes, etc. 28,664. November 13.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Treatment of minerals, etc. 28,338. November 10.

Cederberg, I. W. Producing nitric oxides by catalytic oxidation of ammonia. 28,082. November 8.

Coles, S. O. Cowper-. Sherardising. 27,999. November 8.

Coles, S. O. Cowper-. Sherardising. 28,491. November 12.

Coles, S. O Cowper-. Rust-proofing wire, etc. 28,492. November 12.

Consortium für Elektrochemische Industrie Ges. Manufacture of polymerised vinyl compounds. 28,642. November 13. (Germany, November 14, '25.)

Cross, C. F., and Engelstad, A. Manufacture of products from lignone derivatives. 28,453. November 11.

Dansk Chemo-Therapeutisk Selskab ved Andersen, Siesbye, and Weitzmann. Production of complex aurothiosulphate compounds. 28,111. November 8. (Denmark, November 7, '25.)

Hurrell, G. C. Emulsification apparatus. 28,590. November 13.

I. G. Farbenindustrie Akt.-Ges. Preparation of solutions, etc. 28,051. November 8. (Germany, November 9, '25.)

I. G. Farbenindustrie Akt.-Ges. Condensation products derived from thionaphthene 2 : 3-dicarboxylic acid. 28,292. November 10. (Germany, November 10, '25.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of hydrocarbons of the benzene series. 28,429. November 11. (Germany, November 12, '25.)

I. G. Farbenindustrie Akt.-Ges. Condensation products of the anthracene series. 28,524. November 12. (Germany, November 13, '25.)

Jansen, H. C., and Jansen, J. P. H. Production of alcohol. 28,545. November 12. (November 10, '25.)

Jones, D. T., and Nobel's Explosives Co., Ltd. Explosives. 28,183. November 9.

Kelly, W. J. Accelerator for vulcanisation of rubber. 28,212. November 9.

Metallbank und Metallurgische Ges. Akt.-Ges. Method of simultaneously working up gas currents into sulphuric acid, etc. 28,389. November 11. (Germany, November 25, '25.)

Rhenania-Kunheim verein Chemischer Fabriken Akt.-Ges. Production of solid ammonium carbonate. 28,388. November 11. (Germany, December 7, '25.)

Titanium Pigment Co., Inc., and Wade, H. Manufacture of composite pigments. 28,218. November 9.

United Alkali Co., Ltd. Means for controlling alternating-current induction motors. 28,304. November 10.

Affairs of F. Hulse and Co.

Committee of Creditors Appointed

A meeting of the creditors of F. Hulse and Co., Ltd., chemical manufacturers, Old Mill, Woodlesford, near Leeds, was held on Friday, November 12. The chair was occupied by Mr. C. C. Murgatroyd, who stated that the usual resolution for voluntary liquidation had been passed by the shareholders, who had also appointed him to act as liquidator.

The statement of affairs showed ranking liabilities of £3,717 19s. 1d. There were 113 unsecured creditors whose claims aggregated £3,236 18s. 6d., and a fully secured creditor for £6 6s. 11d., who held security valued at £10. The debenture holders, to whom £3,000 was due, were set down as partly secured creditors, the value of their security being returned at £2,518 19s. 5d., thus leaving £481 0s. 7d. to rank with the unsecured creditors. The assets were estimated to realise £2,524 0s. 1d., from which had to be deducted £5 0s. 8d. for preferential claims, leaving net assets of £2,518 19s. 5d. The assets were insufficient fully to discharge the claims of the debenture holder, and consequently there was nothing available for the unsecured creditors. The issued capital of the company was £15, and as regards the shareholders there was a deficiency of £3,732 19s. 1d.

The chairman reported that the company was registered in 1922 with a nominal capital of £100, of which only £15 had been issued and subscribed. The directors were Mr. F. Hulse and Mrs. Hulse. Some months ago a subsidiary company was formed to deal with dyes, but it was now being wound up. He did not think that any dividend would be paid in connection with that liquidation. The present position of the parent company had been brought about through the failure of the subsidiary concern, the coal dispute, and keen competition. In November, 1923, a debenture for £3,000 was registered in the names of the two directors of the company, and it constituted a charge over the whole of the assets. The deficiency account showed that since October 5, 1923, down to the date of the liquidation there had been a gross profit of £1,943, and with the deficiency in the statement of affairs of £3,732 there was a sum of approximately £5,700 to account for. That sum was accounted for by the following items: excess of capital and liabilities over assets in October, 1923, £901; expenses of carrying on the business, £3,424; financial expenses, £101; losses and depreciations, £1,307. The principal expenses in connection with the business had been: directors' remuneration, £945; salaries, £537; postages, etc., £335; advertising and subscriptions, £666; and travelling, £253.

After discussing the position it was decided that a committee of three of the principal creditors should be appointed, and the meeting was adjourned.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 11d. to 3s. 4d. per gall.; pyridinised industrial, 3s. 1d. to 3s. 6d. per gall.; mineralised, 4s. to 4s. 4d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7d. to 7¼d. per lb. Crude 60's, 1s. 5d. to 1s. 6d. per gall.

ACID CRESYLIC 99/100.—2s. 6d. per gall. Steady. 97/99.—2s. to 2s. 1d. per gall. Pale, 95%, 1s. 10d. to 2s. per gall. Dark, 1s. 9d. to 2s. 2d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOL.—Crude 65's, 1s. 4d. to 1s. 5d. per gall., ex works in tank wagons. Standard Motor, 2s. to 2s. 3d. per gall., ex works in tank wagons. Pure, 2s. 3d. to 3s. per gall., ex works in tank wagons. Scarce and firm.

TOLUOL.—90%, 2s. to 3s. 3d. per gall. Firm. Pure, 2s. 3d. to 3s. 6d. per gall.

XYLOL.—2s. 3d. to 3s. per gall. Pure, 4s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6⅞d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8⅞d. to 9d. per gall.

NAPHTHA.—Crude, 10d. to 1s. 1d. per gall. according to quality. Solvent 90/160, 2s. to 2s. 1d. per gall. Solvent 95/160, 2s. 1d. to 2s. 2d. per gall. Solvent 90/190, 1s. 3½d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £4 10s. to £7 10s. per ton. Whizzed or hot pressed, £5 10s. to £8 10s. per ton.

NAPHTHALENE.—Crystals, £11 10s. to £12 10s. per ton. Quiet. Flaked, £12 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 190s. to 205s. per ton, according to district.

PYRIDINE.—90/140, 14s. to 17s. per gall. Nominal. Heavy, 7s. to 10s. per gall. 90/180, 9s. to 9s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. 6d. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—9½d. per lb. naked at works.

ANILINE SALTS.—9½d. per lb. naked at works.

BENZALDEHYDE.—2s. 1d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—3¾d. to 4d. per lb.

m-CRESOL 98/100%.—2s. 3d. per lb. Limited enquiry.

p-CRESOL 32/34° C.—2s. 3d. per lb. Limited enquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—7d. per lb. naked at works.

NITRONAPHTHALENE.—10d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.

o-TOLUIDINE.—9d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 10s. to £10. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£9 to £10 per ton and upwards, according to grade and locality. Very scarce and in better demand.

IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall. 24° Tw.

RED LIQUOR.—9½d. to 1s. per gall. Very quiet.

WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. per gall., 60% O.P. Solvent, 4s. per gall, 40% O.P. Both scarce and in good demand.

WOOD TAR.—£3 to £5 per ton and upwards, according to grade. Quiet.

BROWN SUGAR OF LEAD.—£41 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5½d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—5s. 3d. per lb.

ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, 80% B.P.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.

ACID, BORIC B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 3½d. per lb., less 5%.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d per lb.

ACID, SALICYLIC, B.P.—1s. 4½d. to 1s. 5½d. per lb. Firm. Technical.—1s. per lb.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 0½d. per lb., less 5%.

AMIDOL.—9s. 6d. per lb., d/d.

ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—11s. 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.

ASPIRIN.—2s. 4d. to 2s. 5d. per lb. Good inquiry.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—8s. 9d. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—12s. 3d. to 14s. 3d. per lb.

BISMUTH CITRATE.—9s. 3d. to 11s. 3d. per lb.

BISMUTH SALICYLATE.—10s. to 12s. per lb.

BISMUTH SUBNITRATE.—10s. 6d. to 12s. 6d. per lb., all above bismuth salts, according to quantity.

BISMUTH NITRATE.—6s. 9d. per lb.

BISMUTH OXIDE.—13s. 9d. per lb.

BISMUTH SUBCHLORIDE.—11s. 9d. per lb.

BISMUTH SUBGALLATE.—9s. 9d. per lb.

BORAX B.P.—Crystal, £27 per ton; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 1s. 9d. to 1s. 11d. per lb.; sodium, 2s. to 2s. 2d. per lb.; ammonium, 2s. 3d. to 2s. 4d. per lb., all spot.

CALCIUM LACTATE.—1s. 3½d. to 1s. 5d.

CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—6s. 6d. to 7s. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.

HYDROQUINONE.—4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. to 2s. 4d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.

MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.

MENTHOL.—A.B.R. recrystallised B.P., 18s. 9d. per lb. net; Synthetic, 10s. 6d. to 12s. per lb., according to quantity; Liquid (95%), 12s. per lb.; Detached Cryst., 15s. 9d. per lb.

MERCURIALS.—Red Oxide, 6s. 5d. to 6s. 7d. per lb., levig., 6s. to 6s. 1d. per lb.; Corrosive Sublimate, Lump, 4s. 8d. to 4s. 10d. per lb., Powder, 4s. 2d. to 4s. 3d. per lb.; White Precipitate, 4s. 10d. to 5s. per lb., Powder, 5s. to 5s. 1d. per lb., Extra Fine, 5s. 1d. to 5s. 2d. per lb.; Calomel, 5s. 3d. to 5s. 5d. per lb.; Yellow Oxide, 5s. 10d. to 5s. 11d. per lb.; Persulph, B.P.C., 5s. 1d. to 5s. 2d. per lb.; Sulph. nig., 4s. 10d. to 4s. 11d. per lb.

METHYL SALICYLATE.—1s. 6d. per lb.

METHYL SULPHONAL.—15s. 6d. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 2d. to 1s. 4d. per lb.

PHENACETIN.—3s. 9d. to 4s. per lb.

PHENAZONE.—5s. 9d. to 6s. per lb.

PHENOLPHTHALEIN.—3s. 9d. to 4s. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—81s. per cwt., less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6½d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. per oz. in 100 oz. tins.

RESORCIN.—4s to 4s. 3d. per lb., spot.

SACCHARIN.—55s. per lb. Fair inquriy.

SALOL.—3s. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb. B.P.C., 1923—2s. 1d. to 2s. 2d. per lb. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb. carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—80s. to 85s. per cwt., according to quantity.

SODIUM SALICYLATE.—Powder, 1s. 10d. to 1s. 11d. per lb. Crystal, 1s. 11d. to 2s. per lb. Strong demand and firm.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—10s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or Powder, 2s. to 2s. 2d. per lb.

THYMOL.—11s. to 13s. 9d. per lb., according to quantity.

Perfumery Chemicals

ACETOPHENONE.—10s. per lb.

AUBEPINE (EX ANETHOL).—12s. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 6d. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—6s. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 3d. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 3d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 9d. per lb.

BENZYL BENZOATE.—2s. 6d. per lb.

CINNAMIC ALDEHYDE NATURAL.—18s. per lb.

COUMARIN.—11s. 6d. per lb.

CITRONELLOL.—15s. per lb.

CITRAL.—9s. 6d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—10s. per lb.

GERANIOL (PALMAROSA).—19s. per lb.

GERANIOL.—6s. 3d. to 10s. 6d. per lb.

HELIOTROPINE.—4s. 10d. per lb.

ISO EUGENOL.—13s. 6d. per lb.

LINALOL.—Ex Shui Oil, 12s. per lb. Ex Bois de Rose, 17s. per lb.

LINALYL ACETATE.—Ex Shui Oil, 15s. per lb. Ex Bois de Rose, 18s. 6d. per lb.

METHYL ANTHRANILATE.—9s. 3d. per lb.

METHYL BENZOATE.—3s. per lb.

MUSK KETONE.—36s. per lb.

MUSK XYLOL.—8s. 6d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—12s. per lb.

PHENYL ETHYL ALCOHOL.—10s. per lb.

RHODINOL.—28s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—18s. 6d. to 20s. per lb.

Essential Oils

ALMOND OIL.—11s. 6d. per lb.

ANISE OIL.—3s. 6d. per lb.

BERGAMOT OIL.—34s. per lb.

BOURBON GERANIUM OIL.—11s. 6d. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—20s. per lb.

CINNAMON OIL, LEAF.—5½d. per oz.

CASSIA OIL, 80/85%.—9s. 3d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 6d. per lb. Ceylon, pure, 2s. 1d. per lb.

CLOVE OIL.—6s. 9d. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—French 38/40%, Esters, 18s. 6d. per lb.

LEMON OIL.—9s. 6d. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—9s. 9d. per lb.

OTTO OF ROSE OIL.—Bulgarian, 70s. per oz. Anatolian, 30s. per oz.

PALMA ROSA OIL.—9s. 9d. per lb.

PEPPERMINT OIL.—Wayne County, 35s. per lb. Japanese, 9s. 6d. per lb.

PETITGRAIN OIL.—8s. 3d. per lb.

SANDALWOOD OIL.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, November 18, 1926.

BUSINESS has been proceeding along moderate lines during the past week, and turnover has been fairly steady. Prices of most products are very firm and mainly with an upward tendency.

Export trade still remains quiet.

General Chemicals

ACETONE remains unchanged at £65 to £66 per ton.

ACID ACETIC is in slightly better demand, but the price is unchanged.

ACID CITRIC.—The demand continues poor at 1s. 2½d. per lb.

ACID FORMIC has a normal demand at last quoted figures.

ACID LACTIC is in better demand at £45 per ton for 50% by weight.

ACID OXALIC.—The price remains unchanged; demand steady.

ACID TARTARIC is in poor request, with the price about 11½d. per lb.

ALUMINA SULPHATE is in good demand for spot and forward delivery, price about £5 10s. for 17/18%.

AMMONIUM CHLORIDE.—The demand is uninteresting; price about £18 10s. per ton, ex store.

BARIUM CHLORIDE is in better demand at £9 10s. per ton, ex store.

COPPER SULPHATE is in good demand and in short supply; the price has advanced from £24 to £25 per ton.

CREAM OF TARTAR remains unchanged at £73 per ton.

EPSOM SALTS is in good demand at £5 10s. per ton.

FORMALDEHYDE is interesting, and stocks are short at £42 per ton.

LEAD ACETATE is in better demand at £44 to £45 per ton for white, and £42 per ton for brown.

METHYL ACETONE is steady at last quoted price.

METHYL ALCOHOL.—The demand is poor.

POTASSIUM CHLORATE is in steady request at 3½d. per lb.

POTASSIUM PERMANGANATE is featureless, and is quoted at 7¼d. per lb. for B.P. grade.

POTASSIUM PRUSSIATE is still firm and stocks are short; it is quoted at 7¼d. to 7½d. per lb.

SODIUM ACETATE is in poor demand at last quoted price.

SODIUM BICHROMATE remains in steady demand at British makers' prices, which are unchanged.

SODIUM CHLORATE is quiet at 3¼d. per lb.

SODIUM NITRITE is in slightly better request at £20 per ton.

SODIUM PHOSPHATE is much firmer in price, with a better demand at £13 to £13 17s. 6d. per ton.

SODIUM PRUSSIATE is in steady demand, with higher prices expected for forward delivery.

SODIUM SULPHIDE is in steady demand at English makers' prices.

ZINC SULPHATE is more interesting, and is quoted at £13 per ton.

Coal Tar Products

There is no great change to report in the market situation for coal tar products from last week, and owing to the scarcity of supplies many of the prices quoted are more or less nominal.

90's BENZOL is firm at 2s. 2d. per gallon on rails, while the motor quality is quoted at 2s. 1½d. per gallon, on rails.

PURE BENZOL is worth anything from 4s. to 4s. 6d. per gallon.

CREOSOTE OIL is worth about 8d. per gallon on rails at works in the country, while the price in London is 9d. to 9¼d. per gallon at works.

CRESYLIC ACID is unchanged at 2s. 2d. per gallon on rails for the pale quality 97/99%, while the dark quality, 95/97%, is worth about 2s. 1d. per gallon.

SOLVENT NAPHTHA is worth about 1s. 10d. per gallon on rails.

HEAVY NAPHTHA is quoted at 1s. 6d. to 1s. 7d. per gallon on rails.

NAPHTHALENES are scarce, the 76/78 quality being worth about £8 10s. to £9 per ton, while the 74/76 quality is worth about £8 to £8 5s. per ton at makers' works.

PITCH is unchanged, and very little business is being done.

Latest Oil Prices

LONDON.—LINSEED OIL closed quieter at a decline of 2s. 6d. to 5s. Spot, £31 15s., ex mill; November to April, £30 15s.; May-August, £30 10s. RAPE OIL quiet. Crude extracted, £44; technical refined, £46, ex wharf. COTTON OIL quiet. Refined common edible, £39 10s.; Egyptian crude, £33; deodorised, £41 10s. TURPENTINE easy at 1s. 3d. per cwt. decline. American, spot, 60s. 9d.; November-December, 61s.; January-April and May-June, 62s. 3d.

HULL.—LINSEED OIL.—Naked, spot, £31 10s.; November and December, £31 7s. 6d.; January-April, £31 7s. 6d.; May-August, £31. COTTON OIL.—Naked Bombay crude, £32; Egyptian crude, £32 10s.; edible refined, £36 10s.; technical, £36. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £40 15s. GROUNDNUT OIL.—Crushed-extracted, £43; deodorised, £47. SOYA OIL.—Extracted and crushed, £35; deodorised, £38 10s. RAPE OIL.—Crude-extracted, £46; refined, £48 per ton. CASTOR OIL.—Pharmaceutical, 51s. 6d.; second, 46s. 6d.; first, 44s. 6d. per cwt. barrels, net cash terms, ex mill. COD OIL unchanged.

Nitrogen Products

Export.—During the past week the export position has remained unchanged. Quotations f.o.b. U.K. port in single bags continue at about £11 5s. per ton. Continental producers continue to sell at their scale prices. The move up of prices in the United States will tend to ensure that these prices will be adhered to.

Home.—The recent increase of 5s. per ton in home prices has had little effect. Merchants continue to cover their requirements for forward positions. On account of the continuance of the coal stoppage stocks of sulphate of ammonia in the country are very small.

Nitrate of Soda.—The freight position has caused an increase in the price of nitrate, especially in the United States, where stocks are not so heavy as in Europe and in Egypt. Producers continue to sell on scale prices, and as the period of consumption becomes nearer increased activity of buyers will tend to keep the market firm.

Calcium Cyanamide

As previously announced, the November price for this fertiliser is £9 8s. per ton, carriage paid, in four ton lots, to any railway station in Great Britain. In Ireland the price is fixed at £10 2s. per ton, in six ton lots, free on rails Dublin, Belfast, Cork and Londonderry, for November delivery. Some demand is still being made for this fertiliser for autumn application to grassland.

Company Liquidator Loses Action

MR. JUSTICE ROMER, in the Chancery Division last week, delivered judgment in an action by Mr. Thomas Robson, of Castle Street, Liverpool, as liquidator of Victors, Ltd., chemical manufacturers, St. Helens, against Mr. Charles Edwin Lingard, of King Street, Manchester; Mr. Harold Mare, and the Midland Bank. Mr. Robson claimed declarations that £30,000 debentures held by Messrs. Lingard and Mare, as the bank's nominees, were invalidly issued on the ground that the directors present at the meeting, at which was passed the resolution authorising the issue, were not competent to vote. He also asked that the debentures and the memorandum of deposit be cancelled, and also for an account of what was alleged to be due to the company by reason of the enforcement of the debentures. Mr. Justice Romer held that the directors were interested in the arrangement with the bank within the meaning of the article, and that the debentures were invalid, but the company was stopped from saying so owing to the recital in the deed and because proceedings were not taken earlier. This led the bank to believe that the debentures were valid and restrained them from taking action against the guarantors, two of whom were now bankrupt. He dismissed the action with costs.

Nobel Prizes for Colloid Chemists

THE Nobel Prize for Chemistry for 1925 has been awarded to Professor Richard Zsigmondy, of the University of Göttingen. The prize for chemistry for 1926 has been awarded to Professor Svedberg, of the University of Upsala. It is of considerable interest that both the recipients have carried out work on colloid chemistry. To Professor Zsigmondy is due the invention and elaboration of the ultramicroscope, which has proved of immense value in various lines of research. Professor Svedberg has recently visited America to lecture on colloids. The 1925 prize for physics is divided between Professor J. Franck, of Göttingen, and Professor G. Hertz, of Halle. The prize for physics for 1926 is awarded to Professor Jean Perrin, of the Sorbonne. The latter also has achieved eminence in the study of (among other things) colloids, his famous work on the Brownian movement having given new confirmation of the reality of molecules.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, November 17, 1926.

POSSIBLY on account of the expected early settlement of the coal dispute business during the past week has been brighter. Numerous export inquiries are also going around. Prices, with few exceptions, are unchanged.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 to £38 per ton; 80% technical, £37 to £38 per ton, c.i.f. U.K. ports.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton; powdered, £49 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC ICE CRYSTALS.—In good demand and price advanced to about 7½d. per lb. delivered or f.o.b. U.K. ports.

ACID CITRIC B.P. CRYSTALS.—Unchanged at 1s. 3d. per lb., less 5%, ex store. Offered for prompt shipment from the Continent at about 1s. 2¾d. per lb., less 5%, ex wharf.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC 80°.—Usual steady demand and price unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC 98/100%.—Spot material rather dearer at 3¾d. per lb., ex store. Offered for prompt shipment from the Continent at about 3½d. per lb., c.i.f. U.K. ports.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC B.P. CRYSTALS.—Now quoted 11½d. per lb., less 5%, ex store. On offer for prompt shipment at 11¼d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material on offer at about £6 per ton, ex store. Quoted £5 8s. 6d. per ton, c.i.f. U.K. ports. Prompt shipment from the Continent.

ALUM LUMP POTASH.—Spot material unchanged at £9 per ton, ex store. Offered from the Continent at about £7 15s. per ton, c.i.f. U.K. port. Crystal powder quality, £7 10s. per ton, c.i.f. U.K. ports. Spot material, about £8 5s. per ton, ex store.

AMMONIA ANHYDROUS.—Imported material selling at about 11¼d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID 880.—Unchanged at about 2¼d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture, quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of Continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED CORNISH.—Supplies for spot delivery still small. Quoted £18 15s. per ton, ex wharf, for prompt despatch from mines. Spot material on offer at £19 10s. per ton, ex store.

BARIUM CARBONATE 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE 98/100%.—Quoted £8 15s. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Spot material available at about £9 10s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts 20s. per ton less. Continental now quoted £7 15s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton; crystals, £23 per ton; powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental on offer at £3 12s. 6d. per ton, c.i.f., U.K. ports.

COPPERAS GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or at £4 2s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material on offer at about £22 per ton, ex wharf. Moderate inquiry for export and price of English material about £23 5s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE 40%.—Spot material on offer at £40 per ton, ex store. Quoted £38 per ton, c.i.f. U.K. ports, prompt shipment.

GLAUBER SALTS.—English material quoted £4 per ton, ex store or station. Continental on offer at about £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material now quoted £37 per ton, ex store.

LEAD, WHITE.—Quoted £37 10s. per ton, ex store.

LEAD ACETATE.—In rather poor demand. White crystals now quoted £44 per ton, ex store, spot delivery. Offered from the Continent at £43 per ton, c.i.f. U.K. ports. Brown quoted £41 per ton, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f., U.K. ports, according to quantity and destination. Spot material available at about £29 per ton.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb. delivered.

POTASSIUM CARBONATE.—96/98% quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £26 10s. per ton, ex store; 90/94% quality quoted £22 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100%.—Powdered quality available at about £25 5s. per ton, c.i.f. U.K. ports. Crystal £2 per ton extra.

POTASSIUM NITRATE (SALTPETRE).—Quoted £22 per ton, c.i.f. U.K. ports. Prompt shipment from the Continent. Spot material about £24 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—On offer at 7d. per lb., ex store, spot delivery. Quoted 6¾d. per lb., ex wharf, early shipment.

POTASSIUM PRUSSIATE, YELLOW.—In little demand. Quoted 6¾d. per lb., ex store or 6¾d. per lb., ex wharf, early delivery.

SODA CAUSTIC.—76/77% at £17 10s. per ton; 70/72%, £16 2s. 6d. per ton; broken, 60%, £16 12s. 6d. per ton; powdered, 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—English material quoted £22 10s. per ton, ex store. Continental offered at about £19 10s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb., delivered.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, £1 7s. 6d. per ton more; alkali 59%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 per ton, ex station, minimum 4 ton lots. Pea crystals, photographic quality, £14 10s. per ton, ex store, spot delivery. Continental commercial crystals quoted £8 15s. per ton, ex store.

SODIUM NITRITE, 100%.—Quoted £20 17s. 6d. per ton, ex store, spot delivery.

SODIUM PRUSSIATE (YELLOW).—In better demand. Now quoted 4¼d. per lb., ex store, spot delivery. Quoted 4⅛d. per lb., ex wharf, prompt shipment.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 10s. per ton, ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE, 60/62%.—Solid, £13 5s. per ton; broken, £14 5s. per ton; flake, £15 5s. per ton; crystals, 31/34%, £8 12s. 3d. per ton. All delivered buyers' works U.K., minimum 5 ton lots with slight reduction for contracts. 60/62% solid quality offered from the Continent at about £8 15s. per ton, c.i.f. U.K. ports. broken quality 15s. per ton more. Crystals, 30/32%, about £6 10s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 15s. per ton; roll, £10 10s. per ton; rock, £10 10s. per ton; floristella, £10 per ton; ground American, £9 5s. per ton, ex store, spot delivery, prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100% solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental make on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

ALPHA NAPHTHYLAMINE.—1s. 3d. per lb. Some home inquiries.

SULPHANILIC ACID.—9d. per lb., 100%. Some home inquiries.

BETA NAPHTHOL.—11d. to 1s. per lb. Some inquiries.

BETA NAPHTHYLAMINE.—3s. per lb. Some inquiries.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, November 18, 1926.

Price movements on the Manchester chemical market this week have been variable. There is an easy tendency in several lines but, on the other hand, a few others are displaying marked firmness as a result of the comparative scarcity of offers at the moment. Actual business this week has shown no noteworthy features and the demand generally remains rather quiet, with home users continuing to buy in relatively small quantities. A fair number of inquiries for shipment have been reported during the week but the demand keeps moderate.

Heavy Chemicals

Firmness is still a pronounced feature of the market for prussiate of soda, and it is difficult to get offers now at less than 4¼d. per lb. Bleaching powder is still being quoted at about £8 10s. per ton, with the demand on moderate lines. A quiet trade is being done in glauber salts and round £3 15s. per ton is still being asked for this material. Saltcake is moving off in relatively small quantities at £3 per ton. Continued weakness is being shown in sulphide of soda and there is not much call for it; for 60-65 per cent. concentrated solid values are now no better than £9 10s. per ton, with £7 to £7 5s. per ton being asked for commercial material. Hyposulphite of soda is also quiet but compared with a week ago there is little change in prices, commercial crystals being quoted at about £9 5s. per ton and photographic salt at £15 10s. Bicarbonate of soda meets with a moderate demand and the market keeps steady at £10 10s. per ton. Although there is only a limited business being done in phosphate of soda prices are held at the recent improvement, from £12 15s. to £13 per ton being currently quoted. Nitrite of soda remains steady at £19 5s. per ton and a fair inquiry is reported. Bichromate of soda continues to display firmness on comparative scarcity, although there is little actual change from the level last reported, to-day's price ranging from 3¼d. to 3½d. per lb. The demand for caustic soda keeps up at a fair level and values are firm at from £15 2s. 6d. to £17 10s. per ton, according to quality. There is only a slow inquiry for chlorate of soda and at 3d. to 3⅛d. per lb. quotations are fractionally lower. Alkali is in quiet request and prices are firm at round £6 15s. per ton.

Permanganate of potash is a dull section and the demand is slow; B.P. quality is again rather easier at 6½d. per lb., with commercial about unchanged at 5d. Yellow prussiate of potash remains firm although not actually changed from last week, current value being about 6⅞d. per lb. Bichromate of potash is also well held at round 4d. per lb., offers being on the low side. Carbonate of potash is steady and in fair request at £26 5s. per ton. There is also a moderate demand for caustic potash and values are maintained at £27 to £27 10s. per ton for the solid material. Chlorate of potash is quiet and easy, and prices are a shade easier at 3½d. per lb.

A fair inquiry for sulphate of copper for shipment has been reported during the past few days at round £23 5s. per ton, f.o.b. So far there is no sign of arsenic receding and prices are maintained at about £16 10s. per ton at the mines for white powdered, Cornish makes, on a moderate demand. Acetate of lime is in limited request but grey keeps steady at £17 per ton, with brown stronger at £8 10s. to £9 per ton. Acetate of lead is slow but values are held at £45 10s. for white and £40 10s. for brown. Nitrate of lead meets with a quiet demand at about £41 per ton.

Acids and Tar Products

Oxalic acid keeps steady at 3¾d. per lb. and a quiet business is reported. Tartaric acid is in fair request and unchanged in price at about 11½d. per lb. For citric acid there is little inquiry at the moment and quotations are easy at 1s. 3¼d. per lb. Acetic acid is well held at £37 per ton for 80 per cent. commercial material and £66 for glacial, a moderate amount of business being put through.

Among the coal-tar products pitch is currently quoted at round £9 10s. per ton with supplies, as in most other sections, very limited. Solvent naphtha is in quiet demand and little changed at 1s. 10d. to 1s. 11d. per gallon. Carbolic acid crystals keep very firm at up to 7¼d. per lb., with creosote oil also very strong at about 9d. per gallon.

Mining Laboratory for Armstrong College

A Centre for Research

Armstrong College, Newcastle, has been promised a grant of £20,000 from the Miners' Welfare Central Committee for the purpose of building a new mining laboratory at the college. At a meeting of the council at which the grant was announced, Dr. C. A. Cochrane said that if the college were to be made the centre of the mining industry in the North, as it ought to be from its geographical position, a new laboratory would sooner or later have to be provided. An endeavour is to be made to secure the balance required for the building over and above the grant of £20,000. It is believed that the grant would cover about half the cost. In connection with the proposed laboratory, it is announced that the Federation of Iron and Steel Manufacturers has approached the college with a view to the undertaking of important work on coke research there. Among the enthusiastic supporters of the proposal were representatives of the Durham Coalowners' Association, and the Cleveland and Cumberland ironmasters. The Fuel Research Board has also asked the college to co-operate in the national survey of coalfields. Because of these proposed developments the urgency of a new laboratory is emphasised.

Fur Dyer's Dermatitis from Chemicals

In the Shoreditch County Court, on Friday, November 12, before Judge Cluer, Albert John Price, fur dyer, of 1, Sceptre Street, Mile End, London, E., was the applicant in an application under the Workmen's Compensation Act, the respondents being Saunders, Tislowitz and Co., Ltd., of Rosemary Works, Bridport Place, Hoxton, London, N.E., fur dyers. It appeared that on November 26, 1925, the applicant was working as a fur dyer, using liquids, when he contracted dermatitis owing to the chemicals used in the liquids for the dyeing. At the time he was earning £7 a week, and since then they had paid him 30s. a week until June 13. He now claimed that the 30s. for total incapacity should be continued, and also that there should be a declaration of liability. Mr. Brown, solicitor, said the respondents admitted liability, and would submit to an award in favour of the applicant for payment at 30s. a week, and to continue during total incapacity, or until the order was altered by the court. Judge Cluer said he would agree to the award as suggested, and the question as to costs would be settled by the Registrar. An order was made accordingly.

Drug and Chemical Merchant's Failure

A meeting of the creditors of Miss Marjorie Roberts, trading as Weiss Roberts and Co., 9, Mincing Lane, London, E.C., drug and chemical merchants, was held last week, at the offices of Mr. W. H. Cork, accountant and auditor, 19, Eastcheap, E.C., when a statement of affairs was presented which showed ranking liabilities of £3,633 10s. 4d. The net assets were £191 8s. 7d., or a deficiency of £3,442 1s. 9d. The principal cash creditor was the debtor's father who had advanced sums aggregating nearly £1,000. Balance sheets had been regularly prepared, and it appeared that during the 18 months to December, 1925, the turnover was approximately £33,000, with a gross profit of £1,105, but after allowing for all the expenses there was a net loss of £501. Between January 1 last and the date of the dissolution of the partnership on August 21, the turnover was approximately £13,000, but the gross profit was only £115 and there was a net loss of £236. The debtor had no offer to make, and it was decided that subject to her father withdrawing his claim, Miss Roberts should sign a letter of authority to Mr. Cork to realise the assets and distribute the proceeds amongst the creditors.

Director of British Paint and Varnish Research

The Council of the Research Association of British Paint, Colour and Varnish Manufacturers have appointed Dr. Louis A. Jordan, A.R.C.S., F.I.C., as director of research to the Association. For the time being, as no headquarters for the research station of the Association have been acquired, the work will be organised and carried on in Dr. Jordan's laboratory in London.

Company News

A. B. Fleming and Co.—The board announce an interim dividend of 5 per cent. actual, less tax, payable on November 20.

Cassel Cyanide Co.—For the year ended September 30 last, the directors recommend a final dividend of 6d. per share, making 9d. per share for the year, less tax.

A. and F. Pears, Ltd.—The accounts for the year ended June 30 last, show a profit of £62,775. A dividend of 5 per cent. is recommended and £9,481 is carried forward.

South Durham Steel and Iron Co., Ltd.—The directors recommend a dividend of 5 per cent. on the ordinary shares for the year ended September 30 last. For the five previous years the dividend on the ordinary shares has been maintained at 10 per cent.

Eastman Kodak of New Jersey.—The directors have declared the following dividends, payable on January 3 next: Regular dividend of 1½ per cent. on preferred stock; regular dividend of $1.25 per share on common stock; extra dividend of $0.75 per share on common stock.

Associated Lead Manufacturers, Ltd.—An extraordinary general meeting will be held on November 26 at London House, 3, New London Street, at 10.15 a.m. for the purpose of considering a resolution to increase the capital of the company to £2,500,000, by the creation of 192,000 additional 6 per cent. cumulative preference shares of £1 each and 288,000 additional ordinary shares of £1 each.

Weardale Lead Co.—The report for the twelve months ended September 30 last states that the profit for the year amounted to £23,194. After writing down plant, property, and machinery account by £4,250, the total amount to be dealt with, including balance brought forward, is £23,422. The directors recommend a final dividend of 2s. 6d. per share (making, with the interim dividend already paid, 17½ per cent. for the twelve months), leaving to carry forward £6,286. The annual meeting will be held at Newcastle-upon-Tyne on November 23, at 12 noon.

Eastern Smelting Co.—The accounts just issued cover 11 months instead of 12, it having been decided to end the financial year on July 31 instead of August 31. The profits for the period amounted to £62,917 against £57,928 in the preceding full year, while £13,654 was brought forward. After deducting depreciation £18,232, against £20,256, interim preferred ordinary dividend and other charges, it is proposed to pay a balance dividend of 10 per cent. on the preferred ordinary shares (against 7½ per cent.), calling for £5,000, and a dividend of 15 per cent. on the ordinary shares (against 12½ per cent.), absorbing £30,000, a balance of £18,444 being carried forward.

Pan de Azucar Nitrate Co., Ltd.—At the annual general meeting held at Winchester House, London, on Wednesday, the chairman said that the trading profit for the year showed a very considerable reduction on that for the previous period, being £34,036 against £59,560. This was accounted for, in part, by the smaller quantity of nitrate on which profit had been taken, and, in part, by the reduced selling price obtained. The nitrate industry, he stated, was at the present moment passing through a very difficult period, owing to decreased sales, which were the consequence of three factors: lack of an adequate selling organisation, competition of rival nitrogenous products, and the heavy taxation imposed by the Chilean Government. They were suffering from inability to compete on fair terms with producers of synthetic nitrogen. In addition, costs of Chilean nitrate had steadily increased, largely owing to the new social legislation which had been imposed in its full severity, more for political than social considerations.

Palm Kernel Case Ends

The hearing of the palm kernel theft conspiracy charge at Liverpool Assizes, in which eight defendants were charged with conspiring to steal £30,000 worth of palm kernels and other merchandise from Elder, Dempster, Ltd., concluded on Tuesday. John Joseph Smith, aged 32, Liverpool Road, Ainsdale, dealer, was sentenced to eighteen months' imprisonment. It was alleged that he received kernels under the guise of sweepings. His father, John William Smith, who was in charge of the warehouse, was found not guilty, and was discharged. As reported elsewhere in this issue, Captain A. G. Large, one of the defendants, committed suicide a few days ago.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent and Trade Mark Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to December 10, 1926.

"Cohesan."

473,055. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Class 1. I.G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzer Landstrasse 28, Frankfort-on-Main, Germany; manufacturers. September 15, 1926. Address for service in the United Kingdom is c/o Carpmaels and Ransford, 24, Southampton Buildings, London, W.C.2.

"Creservative."

473,357. For wood preservative. Class 1. Mawson Clark and Co., Ltd., Pandon Buildings, City Road, Newcastle-upon-Tyne, manufacturers of wood preservatives, greases and oils. September 25, 1926.

"Chlorosene."

470,121. Chemical substances used in agricultural, horticultural, veterinary and sanitary purposes. Class 2. The United Alkali Co., Ltd., Cunard Buildings, Water Street, Pier Head, Liverpool; and Greenbank Works, Widnes; alkali manufacturers. May 28, 1926. (To be Associated. Sect. 24.)

"Diammonphos."

471,942. For fertilisers. Class 2. I.G. Farbenindustrie Aktiengesellschaft (a corporation organised according to German laws), Mainzer Landstrasse 28, Frankfort-on-Main, Germany; manufacturers. July 30, 1926. (By consent.)

"Kovim."

472,249. For chemical substances prepared for use in medicine and pharmacy. Class 3. James Ratcliffe and Sons, Ltd., Middle Hillgate Tallow Works, Stockport, Cheshire; manufacturers. August 13, 1926.

"Sagralax."

473,656. Chemical substances prepared for use in medicine and pharmacy. Class 3. Arthur H. Cox and Co., Ltd., 93, Lewes Road, Brighton; manufacturing chemists. October 7, 1926.

"Concretephalt."

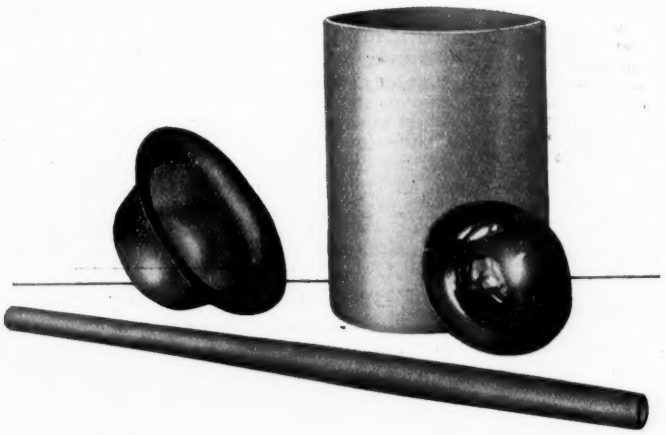
472,458. For bituminous compounds. Class 4. Berry, Wiggins and Co., Ltd., Halling Works, Channelsea Road, Stratford Market, London, E.15; manufacturing chemists. August 23, 1926.

"Siola."

473,862. Raw or partly prepared vegetable, animal and mineral substances used in manufactures, not included in other classes. Class 4. Joshua Rea and Sons, Ltd., Collingwood Street Oil Works, 29 to 39, Collingwood Street, Liverpool; oil and paint manufacturers. October 14, 1926.

Laboratory Porcelain and Safeguarding Regulations

An inquiry has just been started under the Safeguarding of Industries Regulations into an application by the British Pottery Manufacturers' Federation for the imposition of a duty on translucent table ware. Before the proceedings actually commenced, on Monday, Mr. Faraday, who appeared for the applicants, endeavoured to induce the committee to widen the scope of the inquiry to include all articles made of translucent pottery. However, he was unsuccessful in this, and was recommended by the chairman, Sir Philip G. Henriques, K.B.E., to apply to the Board of Trade in that connection. From the point of view of the chemical laboratory, however, it is of some interest to know that Mr. Faraday proposes to exclude laboratory porcelain from his schedule of articles to be taxed, even assuming that permission is given to extend the inquiry beyond table ware, which is the only thing included in the terms of reference to the committee.



Just an ice-can, automobile hub-cap, and a dome — simple everyday examples of press-steel work; but just because their drawings specified Firth "Staybrite" Steel, each item is stronger and, most important of all, will **permanently resist corrosion.**

* * *

FIRTH "STAYBRITE" SILVER STEEL

combines the qualities of resistance to atmospheric influence, moisture, sea water, many acids (including nitric), vinegar, and many organic agents with ease in manipulation.

It is supplied in the form of descaled sheets and strip, possessing a beautiful surface and colour, and taking a high degree of polish. It is intended to replace the class of material known as "Stainless Iron," over which it offers great advantages.

FIRTH "STAYBRITE," with a yield point of about 15 tons per sq. in. and an elongation of 55% to 70%, has exceptional ductility, combined with maximum corrosion resisting qualities.

It may be cold pressed to a degree far in advance of the so-called "Stainless Iron," and, moreover, presents no difficulties in manipulation, since it may be welded, brazed, soldered and riveted without trouble.

The whole Firth experience of the successful application of Stainless Steels to hundreds of problems similar to yours is at your service.

THOS. FIRTH & SONS, LIMITED
SHEFFIELD

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

FULFORD (A.) AND CO., Victor Works, Sheffield, wholesale druggists. (C.C., 20/11/26.) £13 2s. October 12.

LUCLANE MANUFACTURING CO., LTD., Prudential Buildings, Stepney Street, Llanelly, tar refiners. (C.C., 20/11/26.) £11 13s. 2d. October 13.

TOWER DYEING CO., LTD., Tower Dye Works, Radcliffe. (C.C., 20/11/26.) £20 18s. 3d. October 1.

WOODBROOK DRUG CO., Vale Place, Merridale Street, Wolverhampton. (C.C., 20/11/26.) £11 2s. 6d. October 4.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides tha every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

LANCEGAYE AND CO., LTD., Mitcham, paint manufacturers. (M., 20/11/26.) Registered November 1, £701 debenture, to Miss A. Farr, 12, Gloucester Square, Bayswater; general charge.

Satisfactions

EASTMAN AND SON (DYERS AND CLEANERS), LTD., London, W. (M.S,, 20/11/26.) Satisfaction registered November 4, all moneys, etc., registered September 29, 1909.

INTERNATIONAL CHEMICAL CO., LTD. (late INTERNATIONAL CHEMICAL LABORATORIES, LTD.), London, N. (M.S., 20/11/26.) Satisfaction registered November 2, £20,000, part of amount registered April 27, 1926.

London Gazette, &c.

Companies Winding Up Voluntarily

BRITISH DRUGGISTS, LTD. (C.W.U.V., 20/11/26.) F. W. Winter, 18–20, Laystall Street, London, E.C.1, appointed liquidator, November 10.

DIMMOCK (ARTHUR T.), LTD., London. (C.W.U.V., 20/11/26.) W. H. Cork, 19, Eastcheap, London, appointed liquidator, November 5. Meeting of creditors at liquidator's office, Monday, November 22, at 11.30 a.m.

PARKER'S OIL CO., LTD. (C.W.U.V., 20/11/26.) E. Bell, 17, The Exchange, Bradford, appointed liquidator, November 6. Meeting of creditors at the Midland Hotel, Bradford, on Monday, November 22, at 3 p.m.

Notice of Intended Dividend

BOOTH, Thomas Arthur, Louisa Street, Idle, Bradford, wholesale manufacturing druggist. Last day for receiving proofs, November 27. Trustees: A. B. Thoseby, Palmerston Buildings, 5, Manor Row, Bradford, and F. Gill, 2A, Tyrrel Street, Bradford.

New Companies Registered

COTTAM CHEMICAL CO., LTD., 3 and 4, Clement's Inn, London, W.C.2. Private company. Registered November 15. Nom. capital, £500 in £1 shares. To carry on the business of manufacturers and suppliers of chemicals of all natures; to acquire the benefit of certain existing inventions relating to the manufacture of chemicals, etc.

DRYBROOK QUARRIES, LTD. Registered November 6. Nom. capital, £25,000 in £1 shares. To adopt an agreement between T. Taylor of the first part, Thos. W. Ward, Ltd., on behalf of the company, of the second part, and S. Taylor of the third part, to acquire the Hawthorn Quarries at Drybrook, Ruardean, Glos., and to carry on the business of quarry masters, distillers of tar and its derivatives, manufacturers of and dealers in chemicals, manures and patent fuel, etc. Directors: J. Ward, Endcliffe Grange, 50, Endcliffe Vale Road, Sheffield, C. E. Parker, and S. Taylor.

HERBERT LUNT AND CO., LTD. Registered on November 13. Nom. capital, £10,000 in £1 shares. To adopt an agreement with T. Lunt and J. H. Davies, and to carry on the business of soap boilers, manufacturers of and dealers in candles and all articles and substances used in the manufacture of soap and candles, and all waste or by-products resulting from such manufacture, water softeners, soda, and all kinds of laundry materials, refiners of glycerine, oil merchants, chemists, druggists, etc. Directors: J. H. Davies, Park Lane, Aintree, Lancs; G. T. Thompson and H. A. McIlroy.

British Engineering Standards

Annual Meeting of the Association

At the 25th annual general meeting of the British Engineering Standards Association Sir Archibald Denny (chairman) reported that while the general work of the Association was in a healthy condition, the finances were not. It could not, of course, be expected that this industrial work would be unaffected by such a devastating cessation of activity as the coal strike, and the Association had done its utmost to introduce still further economies in addition to taking precautions for the immediate future. He regretted that on March 31 last the Association had to face a total deficit of just over £2,500. This implied that for the time being, at any rate, they could not give effect to the expansion which should and would naturally take place if the necessary funds had been at their disposal. With the help, however, of the Ways and Means Committee, the needs of the Association were being more prominently and more systematically brought to the notice of the many firms, public supply authorities, and others, who did not as yet subscribe to this national work. Also the scheme of membership which was mentioned last year had been put into operation, and was proving moderately successful, there being now some 600 members enrolled.

The work of the various sections was being maintained, attention being specially concentrated on the more important inquiries. One of the sections of more than ordinary interest, at the moment, was the colliery section, the work of which was financed by the coal owners. In the report of the Royal Commission it was stated that the work which the Mining Association had recently set out to do, under the ægis of the B.E.S.A., was perhaps the most important general inquiry in which the industry has in recent times been engaged, and it should yield valuable gains in efficiency and economy. Among other matters the question of the reduction of the number of varying types of rails in the coal mines had been the subject of inquiry, resulting in a recommendation to reduce the present 38 sizes, with 12 or more sections, down to a total of 14. With the gradual adoption of these British standards throughout the coalfields large economies are bound to result. The question of international collaboration in standardisation work had recently come under the consideration of the Association, and the situation was being most carefully explored. With the revival of trade and greater Government support the Association should once again be in a position to carry forward with renewed energy the growing needs of the country for the expansion of this industrial standardisation, so beneficial to the whole Empire.

Society of Chemical Industry: American Section

The Grasselli Medal was awarded on November 5 to Charles Raymond Downs, on the occasion of a joint meeting of the American Section of the Society of Chemical Industry, the New York Section of the American Chemical Society, the Société de Chimie Industrielle and the American Electrochemical Society. The programme was as follows: "The Medallist and Award," by Treat B. Johnson; "Some Speculations in Catalytic Oxidation Reactions," by Charles Raymond Downs; "Phenomena Related to Catalysis," by Gerald Wendt.